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ABSTRACT

THIS STUDY IS CONCERNED WITH THREE MAJOR PROBLEM AREAS WHICH CONFRONT COLLEGE STUDENTS, ESPECIALLY NEW FRESHMEN. THESE PROBLEM AREAS ARE SOCIAL ADJUSTMENT, STUDY PROBLEMS, AND VALUES OR STANDARDS OF CONDUCT. SAMPLES CONSISTED OF 296 FRESHMEN LIVING IN DOUBLE ROOMS, AND 60 STUDENTS SELECTED AT A LATER DATE. WHILE THE ORIGINAL CONCERN WAS ABOUT MENTAL HEALTH AS RELATED TO THE THREE PROBLEM AREAS, THE RESULTING CONCERN WAS ABOUT THE ABILITY OF STUDENTS TO ACCOMPLISH THEIR EDUCATIONAL OBJECTIVES. CONCLUSIONS DRAWN FROM VARIOUS ASPECTS OF THE STUDY INCLUDE: (1) STUDENTS WHO ARE CONSIDERATE OF OTHERS, WARM, AND HAVE POSITIVE EXPECTATIONS OF OTHERS CAN INSULATE OTHER STUDENTS FROM BECOMING DROPOUTS; (2) THE "RESPONSIBILITY" VARIABLE WHICH INCLUDES DEPENDABILITY, SELF-CONTROL, AND INDUSTRIOUSNESS, HAS A STRONG RELATIONSHIP WITH ACADEMIC ACHIEVEMENT; (3) APPROPRIATE STUDY ATMOSPHERE IS ONE OF THE MOST FREQUENTLY EXPRESSED CONCERNS OF STUDENTS; AND (4) MANY STUDENTS FEEL ALIENATED FROM THE ADMINISTRATION. (KJ)

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FINAL REPORT
Project No. 5-0906
Contract No. OE-10-089

EFFECTS OF COLLEGE STUDENT INTERACTION UPON LEARNING AND ADJUSTMENT

James M. Alsobrook

University of Georgia
Athens, Georgia 30601

September, 1969

U. S. DEPARTMENT OF
HEALTH, EDUCATION, AND WELFARE

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Final Report

Project No. 5-0906
Contract No. OE-6-10-089

EFFECTS OF COLLEGE STUDENT INTERACTION UPON LEARNING AND ADJUSTMENT

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September, 1969

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Religiosity as Related to Compassion and Adjustment section on pages 42-44, and Appendix I; Social Interaction, Social Adjustment, Homesickness, Underachievement, Student Responsibility, and Other Aspects of Adjustment to College section on pages 54-61, and Appendix K; The Springs of Happiness for College Students--Implications for Scholarship Motivation section on pages 44-47, and Appendix L; the Academic Adjustment, Time Studied, and Grades section, Students' Search for a Favorable Study Atmosphere--The Problem section, Some Effects of an Unfavorable Study Atmosphere section, and the Search for a Favorable Study Atmosphere--Solutions section on pages 61-73, and Appendix M; Friendship as Circumscribed by One's Niche in the Dorm, pages 47-50, and Appendix N; Appendix A; pages 3-6 of the Introduction and Summary of Conclusions chapter, except for the top paragraph of page 3. The parts specified in this paragraph are not considered in the public domain for purposes of reproduction or other purposes covered by copyright, i.e., they may not be reproduced in whole or in part in any form, except USOE reproduction through the ERIC dissemination system. But information from these sections may be cited (referring to the USOE report or subsequent publications) as any other copyrighted publication, in scholarly works or other reports in standard reference form.

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Preface and Orientation to the Reader

Following is a statement describing the orientation and objectives of the project as originally planned.

> Although given little attention, peer influence appears to be a major source contributing to the learning and adjustment of college students. The goal of the research program, of which the proposed study in part, is to investigate ways in which peer influence may be utilized to create a residence hall climate which is conducive to the effective performance and adjustment of students.
>
> The main objective of the research project is to make a test of a "Health-Engendering Personality" variable, which, from previous research, appears to structure a student's interpersonal behavior in such a way that he engenders mental health and effectiveness in his dormitory associates. A second major objective is to develop procedures for the continuing program of peer influence in residence halls. A final objective is to utilize this research setting for exploring other variables contributing to positive (or negative) peer influence.

Several of the contributions from the project, as it finally evolved, in fact some of those that are most clearcut, are not central to the main objectives of the original proposal. However the original objectives were met, and these other findings are relevant to the general objectives of higher education--the creation of a favorable learning atmosphere, and conditions that are conducive to development of the individual, particularly in the area of responsibility.

Utilized in the report are quotes from students, to supplement more "objective" data. Since students are the main justification for the existence of colleges and universities, it was thought important to provide the reader with some flavor of the opinions and thoughts of the students themselves. Following are quotes from three students (answers to open end questions) which touch on one of the recurring themes of the data, which illustrate students' concern with having their views considered in research and decisions affecting higher education, and which justify the effort expended on this project.

> Just listen to what the freshmen say this year, take and put to use the best of their suggestions, and thus make life easier on future freshmen.
>
> Just hope like hell that somebody pays attention to what the freshmen think and follow their ideas so freshmen ten years from now will not have to worry about what we have.
>
> This is a good project and I think that it can very well help the students. I hope that you have great success with it. I'm glad to be able to assist you in answering these questions. Thanks to you for finally deciding to help the students.

By inclusion of these quotes it is not intended to imply that conditions were bad for the students participating in this project. As will be seen, when asked about favorable and unfavorable aspects of the university the answers were evenly divided, indicating that students in general are not overly critical complainers. Rather, the objective of including these quotes is to illustrate the concern that students have over the conditions that effect them, and that some students have a strong interest in participating in research or other activities that may contribute to this endeavor. It also illustrates their feeling of alienation from the administration and the need for more effective communication.

This is a report of a two year project ending in the fall of 1967. Prior to the end of the contract period, the principal investigator communicated with representatives of the Higher Education Division of USOE's research branch that several new leads had developed during the course of the research. At that time a joint decision was made to delay the final report so that the new findings might be incorporated and integrated with findings from the originally planned research. A serious and long-term family illness and lack of expected local resources delayed the process of integrating the new data and getting that report in final form. It is hoped that inclusion of the additional findings has justified the delay.

The final product is voluminous, with many parts. The format of the report (described below) was conceived as a way of communicating all this in a fairly coherent form, without burdening readers with too many technical details, but providing evidence of the conclusions for those who want to see it. In compiling the various parts of the report emphasis was on inclusiveness without prolonging the delay. It is hoped, then, that the reader will overlook cases of misspelling, wrong tense, etc., which would have been possible to correct with further editing.

Some of the conclusions and recommendations reflect viewpoints receiving prominence at this time. Many of the recommendations are not new, although some are. However it should be kept in mind that most of the data was collected in 1965-1966, before the main surge for change on college campuses. A special attempt was made to include only recommendations that were implied from the data of this research project, and resist the temptation of including personal opinions that may go beyond the data. However, it is realized that interpretations and implications from the data are bound to reflect the author's own judgment to some extent. It is believed that one main way the recommendations in this report differ from similar or competing recommendations being made today, is their basis in data rather than mere opinion. The conclusions from this project have not been integrated with published research from other sources (at least not for this report), in order that the independence of these findings may be considered. Another task, then, is to synthesize findings from this and other research projects in the same areas of inquiry.

A possible limitation to the conclusions is that all the data were obtained at one university, with most of it coming from freshman men students. To the extent that students and settings differ, the conclusions and recommendations should be considered with caution. Certainly there is a need to replicate many of the studies in other settings to establish the generality and limitations of the conclusions. On the other hand, however, the reader should not dismiss the findings as relevant for only one university, or one kind of college setting. Many of the findings seem to have generality beyond the local scene, both "theoretical" and "applied"; some have been replicated by the author in other settings. Additional confidence in the conclusions and their generality is gained by cross validation of many of the findings, and inclusion of variables measured from several instruments and sources.

In various sections "administration" and "administrative procedures" are referred to in reference to implementing various programs and changes implied by the research findings. The administration for whom this is most directly relevant is the staff usually referred to under the umbrella of "student affairs." This would include the housing administration and dean's staff most directly concerned with residence halls and programs other than curriculum, as well as health service and counseling-guidance staff. However the reference is also relevant to faculty committees, academic deans, department heads, as well as the top administration, and even officers of student government, when they participate in decisions which may affect student living-study conditions. Special reference is made to "educational administrators," in relation to the method for administrative feedback about student perceptions of the campus milieu, described in Appendix D. This is considered to be especially relevant for college presidents and other top administrators, since it concerns students' generalized attitude toward the institution (with which the top administration is associated as a central part), and feedback about the relative effectiveness of any and all aspects of the institution's functioning. This systematic feedback is also relevant for officers of student government as a means of obtaining representative information about the views of their constituency.

Since much of the data pertains to university "residence halls" a note on terminology probably is needed. There has been a strong preference by some housing administrators and student personnel administrators to use the term "residence hall" rather than "dormitory" to refer to the place where students live and sleep. The objective is to have the term refer to something more than a mere place to sleep, which is supposedly implied by "dormitory." The author went along with this terminology, although finding it awkward at times. Then it became increasingly apparent that the term "residence hall" and its intended meaning was not a common meaning. This is illustrated by the following quotation taken from a student's written suggestions about improvements at the university. "...There is only one phone per **dorm**, excuse me, per residence hall...." In communicating with faculty and some administrators, as well as with students, it was realized that "hall" has the meaning of the corridor on which rooms open, and that "dorm" has more common meaning as the place where students live. For these reasons, the terms "dorm," "dormitory," and "residence hall" have been used interchangeably in this report. Perhaps "dorm" is a satisfactory term for the intended meaning after all, since no one refers to "barracks," which is the conception that the originators of "residence hall" wanted to avoid. Perhaps still another label is needed to avoid confusion of terminology. For now, however, it appears that "dorm" has more common meaning, and is applied alike to the most sparsely furnished living accommodation and the most elegant. To conclude this section, the nature of the beast is more important than his name; but it does help to use a name which all understand.

Orientation to the Reader:

The main body of the report is relatively brief, considering the amount of data it represents. The Introduction summarizes some of the more general conclusions and their implications. There is a brief Method section which describes the samples and provides a general description of the instruments and procedures used for gathering and analyzing data. Appendix A supplements the Method section of the main body with details concerning the main variables, instruments, and sources of measurement. The Method section of the main body of the report is followed by a section summarizing some of the main Results, Conclusions, and Recommendations.

Most of the findings are in the form of separate studies, each dealing with a somewhat different topic, but pertaining in some way to the learning and adjustment of college students, the campus milieu, or procedures for obtaining valid information about these areas (whether for research or information for purposes of specific planning). These studies are organized into 13 separate technical reports, comprising Appendices B through N. Details of the procedures and findings and more detailed discussions of their implications are contained in these appendices. Each of these appendices is a self-contained technical report. The main findings and implications from these technical reports are summarized in the Results, Conclusions, and Recommendations section of the main body of the report. They are referred to separately for the various studies, to coordinate with the technical reports of the appendices, but in a narrative form (lacking technical details) that is intended to provide some coherence and perspective.

To summarize, the reader may obtain an overview and summary of some of the highlights of the research from the Introduction and Summary section of the main body of the report. This is followed by a relatively brief Method section summarizing the general procedures and samples. The main body of the report concludes with specific findings and implications from the research in the Results, Conclusions, and Recommendations section. The reader interested in a fairly concise account of the main findings of the research project may obtain this from the main body of the report. Those interested in more specific information about certain findings and procedures or more extensive discussion of certain implications may obtain this information from the relevant technical reports of the appendices.

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Introduction and Summary of Conclusions

As background it may be useful to consider three major problem areas which confront college students, especially new freshmen.

One of these problem areas is social adjustment, which takes two forms. One form concerns the shy student or the student with relatively underdeveloped or inappropriate social skills. The problem for him is to overcome his shyness, learn appropriate social skills, and be better accepted by other students. Part of this depends upon him and part of it depends upon other students and appropriate social opportunities. Mental health or social-emotional adjustment may be considered here.

The other social problem involves social conformity and standards of conduct. Here we have the student who is accepted, not overly shy, at least moderately successful in his social skills, but who feels that he must conform to certain standards of misbehavior, or bravado. He spends too much time in socializing, which should be devoted to studies or other responsible behavior. We also have the person who drinks excessively, or becomes involved in real delinquency. Many of these students would like to develop into more responsible and mature individuals. But due to social pressures or other kinds of expectations that they have for themselves (along with their wanting to become more responsible and mature) they are being influenced too much by these other sources.

The second problem area is study problems--concentration on one's job as a student, and effective performance in this job. Study problems may take several forms. One study problem is merely sitting down and spending sufficient time to work on studies. This involves procrastination. It also is related to being distracted easily and tempted to socialize too much. Another study problem is inability to concentrate. This, also, may be related to the student trying to study when he wants to be socializing. It also involves boredom with studies, being at college to obtain a degree which is a ticket to a job, but not being especially interested in the day-to-day material covered by the professor or in his own studies, or due to uninteresting material or presentation. For some students, difficulty concentrating is due to feelings of inadequacy in the social area. Lack of a favorable study atmosphere is a major hindrance to effective study for many students.

The third major problem area for students is in the moral or ethical realm, standards of conduct, philosophies and values of life. The moral area was considered for this research project only as it pertains to effective study, and the development of responsibility. Although not dealt with specifically in the research, it is relevant to consider a code of ethics which says that one should be free to choose his own activities, but limit should be placed on him when he interferes with the rights of others. This should be a self-imposed regulation. But external sources must step in and help to control a person when he consistently violates the principle of disturbing others. This would apply to making excessive noise in the dorms, taking advantage of other people, demanding conformity for acceptance, disturbing others from their studies in subtle ways, etc. A dilemma is posed by the tendency of students to oppose external controls from "the establishment." Since some form of control is needed for their own protection, they must somehow supply it themselves.

We started into this project concerned mainly about the mental health of college students. On the basis of what we have learned from the data, we have ended up concerned as much or more about the ability of students to accomplish their educational objectives. The emerging data has shifted the emphasis to student responsibility, study atmosphere, various changes needed in the campus milieu, and the nature of educational institutions themselves. Much of the report involves data which have implications for achieving these objectives through some of the following endeavors: design and construction of dorms, and effective utilization of existing dorm space; procedures for assigning students as compatible roommates; identifying and assigning students in such a way as to engender mental health and facilitate responsibility in their peers; a procedure for obtaining representative and objective feedback about student attitudes toward the institution, and their perceptions of various aspects of the campus milieu; avenues for communication with and attention to the individual; ways in which students and educators may work together to produce a milieu that is more effective for learning and for individual development.

There is still concern about student mental health, and much of the data pertains to the social-emotional development of college students. Although most students at the university (where this project took place) are oriented more toward social activities than intellectual pursuits, they still show much concern for academic achievement and finding personal meaning from their learning endeavors. Although more students exhibit more stress from studies than from social relations, there are still many students who have great difficulty in making even borderline social-emotional adjustment. The initial emphasis of the research project was concerned mainly with ways in which students influence the mental health and adjustment of other students.

The main personality variable of concern was "Health-Engendering Personality," which is characterized by consideration for others, warm and close interpersonal relations, trust and positive expectations of others. The data indicates that college students with these characteristics do engender positive social-emotional adjustment in their fellow students, and insulate them from becoming dropouts. Utilization of this information and related procedures could be useful in facilitating the adjustment of those students for whom social-emotional adjustment is a major problem. This probably could be done best through a student health service or psychological-guidance clinic, which has the confidence of students, in coordination with the housing staff and student personnel administration.

As noted above, there are a number of students who have "made it" socially with some in-group, but who lack responsibility and independence in their social relations and orientations. One of the most consistent and impressive findings of this research project concerns a "Responsibility" personality variable, characterized by traits such as dependability, conscientiousness, industriousness, and self control, which has a strong relationship with academic achievement. The results of this research have implications for utilizing this variable to facilitate responsible behavior and learning of college students. But this can be achieved only with appropriate administrative support and planning, and participation of students in taking responsibility for themselves and others, including the development of a favorable study atmosphere.

Obtaining an appropriate study atmosphere is one of the most frequently expressed concerns of students, as well as emerging from other aspects of the data as a major problem area in the campus milieu. The research data used grades as the main criterion of learning, but this was supplemented by self report scales on students' ability to concentrate and avoid distractions, and other aspects of academic-intellectual adjustment. Although not measured directly, the findings also have implications for study atmosphere conducive to inquiry, a spirit of curiosity and quest, as well as a quiet atmosphere which facilitates study of specific assignments.

Reduction of noise in the dorms, and more numerous and convenient study lounges with appropriate study atmosphere, are needed for students to be able to concentrate and spend sufficient time on their studies. Part of the solution involves appropriate utilization and management of present physical facilities, as well as appropriate design of any new dormitories that may be built.

A major factor in obtaining a favorable study atmosphere is the increase of student responsibility in the sense of self-control. But also needed is student responsibility in a broader sense, participation in a socio-political process which helps to create relevant social norms for study and inquiry. Such a process could be greatly enhanced by support and guidance from student personnel workers from the campus administration, who would serve as resources and provide leadership in guiding students in these endeavors.

Perhaps overriding all of this is concern with the institution itself. Various factors in the campus milieu which are ordinarily controlled by, or may be influenced by the administration, may contribute to problems of students in the sense of hindering development of favorable study atmosphere and personal growth. One of the strongest feelings expressed by the students was alienation from the administration, being passive participants in a process in which they are not expected to take responsibility, and over which they have no degree of control. This is expressed in terms of inability to communicate with the administration (in either direction) with a consequent feeling that the administration has no concern for the individual.

Improved means of communication among students, administration, and faculty is one of the greatest needs in higher education. Loss of contact with the individual is often considered inevitable with the increased size and complexity of educational institutions. One way of supplementing this is through a stronger student government, with its representatives communicating with the administration. Although this can serve a useful function, most students feel out of contact with the student government, and that it does not bridge the gap between individual students and administrators. One way for the student body to represent themselves to the administration, and for the administration to obtain representative views of the student body, is by an objective and systematic method of sampling students' perceptions of the campus milieu, such as the method described in this report. That would go a long way in providing information about prevailing student attitudes toward the institution, as well as their perceptions of various aspects of the campus milieu. Systematic feedback of this nature would be useful in making educational-administrative decisions, as well as in helping to avert the crises of student-administration confrontation. This one-way communication, however, would only partially alleviate the alienation between students and administration.

To many students the administration appears "unapproachable" for the individual student, especially the higher echelons of the college administration. Certainly there is no need for every student to talk to the president, nor would time and the other demands of his job make it possible. However there are means for increasing the personal contact with individuals, and for promoting a feeling by the student body that the administration is approachable and is concerned about individuals. Greater attention to the process of academic advising, considered much needed by students, would be a way of extending the individual contact between individual students and representatives of the educational institution. Although beyond the scope of this report, details of doing this would need careful consideration. There are other projects which have developed some promising leads in improving the advising function. Although not based upon data from this report, it would also seem useful for top administrators, periodically, to meet informally with individuals and small groups of students representative of the student body (in addition to their formal meetings with student leaders).

It is frequently mentioned that the institution fails to treat the college student as a responsible individual, certainly not as a responsible adult. Protests by students have centered around the limitation of personal freedom due to restrictive rules and regulations, and various ways in which the institution acts as the absent parent. When more freedom or responsibility have been granted students, it has too often been in response to strong and persistent demands by students, with the administration acting to prevent crises rather than deliberately planning for cooperation with students and for development of responsibility in students. Although frequently stated these days, data indicating student concern for more responsibility was obtained from this research project in the 1965-1966 academic year, prior to the current widespread social movement agitating for more student influence. This situation is stated fairly well by a student, in his answer to open end questions about favorable and unfavorable aspects of college. "College is a place to learn, and gain a sense of responsibility. How can you learn something that isn't available? How can you gain responsibility when you are made to do something?"

In the past student personnel administrators and those concerned with residence halls have been too much influenced by the irresponsible minority of students who cause trouble or break petty rules, too concerned with apprehending violators after the fact. Here we are talking about students who are young adults, old enough to vote on the highest offices of the land (in some states) and to serve in positions of responsibility in the armed services, but still in a formative stage, especially when they choose to place themselves in an educational environment. It seems that the development of responsibility in college students would be a major goal of higher education, as important or more important than the development of a set of knowledge and skills in a particular academic area.

In addition to student responsibility being an important goal in itself for an educational institution, active planning for student participation in creating a favorable atmosphere for learning and development seems to be a necessity of the times--probably more effective than excluding students, regardless of the times. As a side benefit, in the long run student participation could effect economic efficiency by reducing the number of paid administrators needed to carry on the present system.

A major problem of housing administrators is students wanting to live off-campus, out of the dormitories. In some cases this creates a financial problem for the university, which must justify the existence of present dormitories and pay off their financial indebtedness. It also creates a problem in the over-all community due to a general shortage of housing. The desire of students to move away from dormitories seems partly grounded in the general student movement toward more individual freedom and/or responsibility, but also is prompted by lack of favorable study atmosphere in the dorms.

Boards of directors responsible for allocating funds for residence halls usually agree that "extras" (beyond mere living space) are nice, but doubt that they are necessary. Findings from our research support the educational efficacy of utilizing existing space for some relatively inexpensive extras such as small, effective, strategically located study lounges. (This is compared to the more large scale extras advocated today, such as classes in the dormitory, and centralized public areas.) Combined with increased student responsibility, these changes should contribute to a more favorable study atmosphere as well as to the development of responsibility in individual students.

Programs to produce a favorable study atmosphere are needed, but too often they take the form of manipulating students or token changes. It is not irreconcilable for an educational administration to work toward increasing student responsibility while they plan for favorable environments for students in the dormitories, if students are included in the planning process. One way of systematically including students' desires and needs is through a systematic and representative sampling of student perceptions of campus milieu, such as the procedure illustrated in this research report. If this feedback of student reactions is taken into account in the decision making process of the administration, this could go a long way toward accomplishing educational objectives and satisfy student desires and needs for representation. This could supplement (but not replace) the process of increasing student responsibility in self-government and including students in relevant phases of administrative planning.

Method

Setting. The research project was conducted on the campus of a large state university in the Southeast, with most of the data collected during the 1965-1966 academic year when the student body numbered approximately 14,000. Much of the research was conducted as a series of field studies in a large men's residence hall with capacity for approximately 500 students. This dorm setting is described further below. In addition, answers to open-end questions were obtained from students in other dorms. Women college students in a large dorm for women participated in two major studies, and several surveys were made of a cross-section of men and women students. These other samples are described with the appropriate studies.

The men's dorm. The dorm used for most of the studies was relatively old, with fair sized student rooms and satisfactory upkeep, but not very well furnished. The decoration and atmosphere was not cheery, and by standards of more modern dorms might be considered somewhat drab. There were pay telephones in the hall on each floor, two community bathrooms on each floor. Although there was a lounge with easy chairs at the entrance of the building, and a TV room in the basement, there were no study lounges nor recreation facilities in the dorm. Most rooms were double rooms, with a few rooms considered as triple rooms and a few single rooms. There were five floors to the dorm, with approximately 100 students on each floor. The majority of the rooms opened on long hallways, but some rooms in the wings at either end of the building opened onto small, relatively isolated alcoves. The wing at one end of the building was relatively small, comprising spaces for approximately 30 students and somewhat isolated from the main part of the building. For analyses pertaining to dorm conditions, students from all parts of the dorm were included. This dorm was probably fairly representative of the majority of dorms on college campuses today. Most of the students were freshmen. For each section of approximately 30-50 students, there was an upperclass section advisor (paid by the university) in charge, and a sophomore volunteer informal advisor. Although mainly a freshman dorm, there were a few other upperclass students living in this dorm. Most of the questionnaires were delivered to all 500 students in the dorm, but they were intended mainly for freshmen students, with no special attempt to elicit responses from non-freshmen.

Freshman doubles sample. For field studies involving roommate influence and compatibility, and other studies as well, the main sample was composed of 296 freshmen in double rooms (148 pairs of roommates) with relatively complete fall quarter data. This was considered an ample size sample, it was mainly first quarter adjustment that was of concern, and students in single rooms and triple rooms could not be considered appropriately for roommate influence and roommate compatibility. The freshman doubles sample comprised approximately 23% of the freshman men entering the university that year. (At this university there is a relatively small proportion of freshmen compared to the total student body, since many students transfer as upperclassmen from junior colleges, and there is a fairly large graduate school.)

Experimental sample. At the end of fall quarter 60 students were selected to participate in a field experiment during winter and spring quarters.[1] At the beginning of winter quarter they were assigned to live in two relatively isolated sections of the dorm. However during the fall quarter they were scattered throughout other sections of the dorm. Apart from their participation in the field experiment, some of their data was analyzed separately from that of the other students--as cross-validation (replication), or to supplement data from larger samples. Although students were assigned to the two experimental sections on the basis of certain characteristics, the combined sample from both sections was fairly representative of the freshman doubles sample. Their participation in the field experiment consisted almost entirely of answering extra questionnaires and being interviewed twice each, i.e., their participation in the experiment did not constitute conditions much different from the rest of the students in the dorm, and from this standpoint their data may be considered fairly representative of the others. This is illustrated in several of the studies in the appendices by patterns of their data quite similar to data from the freshman doubles sample. (Actually the majority of these students were included in the freshman doubles sample, but constituted only a relatively small proportion of it.)

Other samples and settings. For survey questions and analyses not pertaining specifically to roommate influence, samples were selected to represent all parts of the large men's dorm, whether or not they were in the freshman doubles sample. For one set of analyses "dropouts" were compared with control subjects (with the freshman doubles sample used as a representative control group). For another set of analyses students in "crowded rooms" (triple rooms, and double rooms which had to be entered through the next room rather than having a separate doorway to the hall) were compared to a large control group (freshman doubles minus those freshman double subjects in crowded rooms). Two studies utilized 120 women students living on one floor of a high rise dorm for women. Approximately 40% of these students were freshmen. The floor was divided into four sections, with relatively little division between sections, and all rooms opening onto a long hallway. This dorm was relatively new, and the general atmosphere was more favorable than in the men's dorm described above. There were two small study lounges for the floor, but these doubled as ironing rooms, and were originally used as student bedrooms at the first of the year, i.e., the atmosphere was hardly conducive to study. However there was a large study room on the first floor of the building, along with other large public rooms. Other students, sampled more or less at random, were included in surveys which called for answers to open-end questions.

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[1] For purposes of the field experiment, this sample was reduced to 52 subjects, after exclusion of upperclass section advisors and students who did not live in experimental sections both winter and spring quarters. However the data of all 60 was included for analyses not pertaining to the field experiment and relevant for students in general.

Procedures. During the fall and spring quarters two questionnaire booklets were administered to all students living in the residence hall. The instruments contained in the booklets consisted mainly of: Reactions and Adjustment to Campus Environment Questionnaire; Descriptive Rating Forms on which each student was asked to rate himself and several peers; sociometric questions; biographical data; measures of social interaction; and several open-end questions. Written instructions in the booklets were self-explanatory. Questionnaires were given to students by their section advisors in a section meeting; most of the students absent from the section meetings were given booklets individually. The students filled out the booklets in their rooms and returned them in sealed envelopes within three days after receiving them. Participation was voluntary. Approximately 90% of the freshmen participated in the fall quarter, and approximately 80% participated in the spring quarter.

Questionnaires were divided into two booklets, with questions from the first booklet containing approximately half of the questions from the Reactions and Adjustment questionnaire, and the other half in the second booklet. Fall quarter the first booklet was administered approximately the seventh week of the quarter, and the second booklet approximately the eighth week. In the spring quarter the two booklets were administered approximately the seventh and ninth weeks of the quarter. Some subjects were not available for administration of the first or second booklets, and others failed to complete the second booklet--especially in the spring quarter close to the time of impending examinations and vacation. For this reason there were many subjects with incomplete data, i.e., having scores on variables from some instruments and sources but not from others. In order to maintain the largest sample possible for each analysis and have the data as representative as possible, all subjects with data on a given variable were included in the analysis of that variable. This meant that the actual number of subjects from a given sample might vary somewhat from analysis of one variable to another. However there were a large core of subjects common to analyses of all variables. Various forms of analyses included correlation, analysis of variance, t-tests, and comparison of frequency distributions of responses as appropriate.

Measurement. For most of the studies of this research project, measures were needed for certain personality dimensions and various forms of adjustment to college. In deciding on a course of measurement the following rationale was used.

In the usual personality and adjustment measurement situation there is too little correspondence in the measurement of the same variable from method to method or from source to source. For example, various self report measures of adjustment and personality tend to be highly intercorrelated. Social desirability and response sets (ways an individual responds to items in general, and especially to items of the same form) are often the main things accounting for the high intercorrelations among different variables measured by self report. Ratings received from observers on various characteristics tend to be substantially intercorrelated, also, but have low correlations with self report measures of adjustment. In short, there appears to be as much variance due to the source, method, or instrument as to the content or actual mode of adjustment in question. One way of separating these different modes of adjustment, particularly when obtained from the same source or by the same method, is by categories or scales of adjustment based upon factor analysis. This approach was followed in the present study. Also, to further increase the generality of the assessment of adjustment, measures of adjustment were obtained from several different sources, procedures, and instruments. These included observations of others as assessed by peer ratings and by sociometric choices, three forms of self-reports, and grades.

The main measures used for the research project are described in Appendix A, along with information about reliability and validity. So only brief descriptions will be given here.

Items of the Descriptive Rating Form consist of personality traits and interpersonal behaviors along with six-point graphic rating scales. Each subject was assigned to rate (and be rated by) his roommate, approximately six other peers in nearby rooms, and to rate himself on the items of Descriptive Rating Forms. Pooled (averaged) peer ratings on Responsibility and Health-Engendering Personality (HEP) are theoretically and socially relevant dimensions of personality and interpersonal behavior, considered as motivational and influencing variables. Peer ratings and self ratings on Adjustment and Social Adeptness have been used as measures of mental health. Self ratings on these dimensions and a measure of Self-Esteem may be considered as measures of self concept.

The Reactions and Adjustment to Campus Environment Questionnaire (referred to as "Reactions Questionnaire" or "Personality Inventory" for short in the accompanying technical reports) provides self report measures of several aspects of adjustment to college, mental health, and student reactions to various aspects of the campus milieu. The instrument, its rationale, and the variables derived from it are described briefly in the two paragraphs below, and in more detail in Appendix A.

Items of the Reactions Questionnaire are in the form of questions about various aspects of the campus environment, college life, and student reactions to these things. An item is answered by a response to a set of five multiple choice alternatives, a format with which students are already familiar. The set of alternatives for each item form a five-point scale, with a neutral point of three, which may be used in interpreting scores on the various variables. Items are worded in terms meaningful to students. Variables are defined by items combined into categories on the basis of factor analysis and psychological-logical similarity. Item wording and instructions are designed to focus respondents' attention on the campus milieu and its effects, in order to reduce self consciousness and defensiveness in responding. Items contributing to the adjustment variables are interspersed with items concerning specific aspects of the campus milieu. Use of the instrument to measure student perceptions of specific aspects of the campus milieu, in a form useful for administrative feedback, is described in Appendix D. The main adjustment variables are described briefly in the paragraph below.

The main measures of social-emotional adjustment are the Social Adjustment variable and the Happiness variable. Social Adjustment includes satisfying friendships, participation in social activities, acceptance by others, satisfaction with other students, etc. The Happiness variable pertains to extent and frequency of feeling happy, frequency of enthusiasm versus feeling bored. Other social-emotional adjustment variables are Lack of Anxiety, Lack of Worry, Lack of (physiological) Symptoms. The "Lack of" part of these labels is included because all variables were scored so that a high score refers to the favorable end of the continuum and a low score pertains to the unfavorable end of the continuum. This facilitates a uniform interpretation of the signs of correlation coefficients and the direction of mean differences. Roommate Compatibility is included as a measure of social-emotional adjustment, and as an independent variable used as one of the main topics of research. Academic Adjustment measures satisfaction with achievement, ability to concentrate on studies, and enjoyment of studies. Attitude toward the University is a variable measuring generalized attitude toward the institution.

Further information about the methodology is given with the various research studies described in the report. This may be in the form of brief summaries in relevant parts of the following section of the main body of the report, but in all cases is given in relevant technical reports of the appendices.

Results, Conclusions, and Recommendations

In this section the findings of various research studies are presented in the form of conclusions and their implications for policy or action. Results in the form of statistical data are kept to a minimum. Specific recommendations are not made, as such, but are in the form of conclusions and implications from the data, along with suggestions of ways in which these findings may be used to facilitate learning and adjustment of college students. Although the objective of this section of the main body of the report is to present a fairly coherent account of the main conclusions and implications, the organization of the separate parts reflects the fact that this is a compilation from a number of different studies. The various parts are organized, mainly, to correspond to the separate studies contained in the technical reports of the appendices. Technical details and more detailed discussions can be found by reference to appropriate technical reports comprising the appendices.

Orientation to Methodological Contributions:

Methodological contributions are presented first. These are procedures which should be generally useful in obtaining new information, increasing the validity of data, or guiding strategies of research and other changes in field settings. The first topic is a method for obtaining student perceptions of the campus milieu, which should be useful for administrative feedback. This topic is presented first because it is the procedure which may be most generally useful, and because of its timely nature. This is followed by a brief summary of some hints for avoiding pitfalls in carrying out research and other action programs in campus communities and other field settings. After description of the main personality variables used in this research project, there is a summary of conclusions and implications from two methodological studies, which have generality and which provide background for findings from content-oriented studies utilizing these methods.

Student Perceptions of Campus Milieu--a Method of Obtaining Feedback for Educational Administrators:

As used in this report "campus milieu" refers to social, intellectual, administrative, cultural, and other aspects of the campus community, as well as to the physical environment of the college, i.e., any experiences found in the campus community which the student may encounter or which may affect him.

How do students perceive and react to various aspects of the campus milieu? What is their attitude toward their college or university? Toward the academic program? The administration? Its rules and regulations? Opportunities for social development?

Potentially useful information? For what? How can educational administrators and faculty learn about these student reactions, and how is this information relevant to them?

In a college or university the student viewpoint is important because students provide the primary purpose for justification of the institution. One objective of higher education is developing young adults into responsible citizens, through a process of inquiry. Recent events on campuses around the nation and the world have shown that college students are concerned about the processes that effect them and their education. If educators are to maximize the education and development of college students, it should be useful to understand their perceptions of the campus milieu (which in turn influence their attitudes and behavior). Information about student attitudes and perceptions are needed to facilitate communication with students, and to learn more about the impact of various aspects of the campus milieu upon students and their development.

Some avenues of student feedback have always been open to educational administrators, e.g., meetings with student leaders, the student newspaper, student complaints, and other contacts with individuals who come to the attention of authorities. However, many perceptive educators have come to realize that these sources of information are limited, unrepresentative of the student body, and by their partisan nature are biased to varying degrees. It seems that a more systematic and objective method is needed for assessing student perceptions of the campus milieu.

Expediency also requires information about student attitudes toward the college, its administration, and its programs and policies. It is generally realized that a person's attitudes and even his overt behavior are influenced as much by his perception of a situation as by its objective reality. Now, more than ever before, educational administrators are coming to realize the need for a barometer to gauge the prevailing perceptions and attitudes of the student body. The need has been raised by expressions of highly vocal and often violent discontent. While those who display extreme behavior often constitute a small minority, sometimes large numbers of their peers join them in demonstrations and disruptive activity. Usually it is difficult to gauge student reaction before violence or other confrontations occur. Then it is difficult to determine the extent to which sentiments of the more vocal actors are shared by other segments of the student body, and the extent to which these attitudes are influenced by the confrontation itself (in contrast to individual attitudes developed over a longer period of time).

The opportunites for averting crises would be increased if the administration had a systematic method for assessing student attitudes toward the college. Hopefully information about student reactions would reach the educator and be taken into account before some issue reaches crisis proportions. Hopefully, also, collection of information about student perceptions would be motivated by genuine concern for student needs and relevant change, and not merely to avert crises.

The rapid growth of higher education places new demands upon the educational administrator. It means regular increases in the number of students to be accounted for, housed, fed, and scheduled for classes. New fields of knowledge and advances in older disciplines demand new instructional techniques, new and expanded facilities, and new courses, all of which increase the scope of administrative responsibility. There are many changes in students themselves, the college input, as well as after they reach the campus. Although it is an organizational entity, a college or university performs a variety of functions. Even for the administrator of the small college it is not hard to lose the perspective that is needed for evaluation of various aspects of the college's functioning. Not all aspects of the organization perform with equal effectiveness. But how is the educator to know about the relative effectiveness of various aspects of the campus milieu, and their impact upon students?

The purpose of the technical report of Appendix D is to describe a method which appears to be useful for obtaining feedback about student perceptions of the campus milieu. On the one hand the method includes a procedure for assessing generalized attitude toward the college and its administrative operations, which may serve as a useful barometer to gauge the dimension of student satisfaction-discontent. On the other hand it includes a procedure for using student perceptions to compare the relative effectiveness of specific aspects of the campus milieu--in such areas as instruction, study conditions, registration, meals, housing, academic standards, social opportunities, etc. As a measure of generalized attitude toward the institution we combine student reactions to several different (but related) aspects of the campus milieu--mainly those aspects involving administration and policies most centrally associated with the college as an institution. As feedback about the relative effectiveness of various aspects of the campus milieu we consider student perception of each aspect separately, expressed in a meaningful and quantitative form.

Data about the collective perceptions of a representative sample of the student body enable the educational administrator to make a clearer evaluation of any given aspect of college life. Such data may be considered as an estimate of the effectiveness of current procedures, and the value of innovations. Student reactions toward various aspects of the campus milieu may not be completely veridical with the college as "objectively" viewed from other frames of reference. However, students have a unique (and perhaps optimum) vantage point for experiencing various aspects of the campus milieu first hand. For now, suffice it to say that the important thing about any aspect of the campus milieu is its impact upon students. At a minimum, when systematically and objectively measured, these student perceptions of the campus milieu may serve as guideposts of areas for educational administrators and faculty to examine more closely.

Recently the study of campus cultures and environments has been increasing in popularity, as indicated by inventories developed by several major aptitude testing organizations. Typically these inventories consist of a number of statements to which students respond true-false or agree-disagree. Although individual items have relatively low reliability, they are usually combined into several reliable categories or scales, each category reflecting some broad aspect of the campus culture or college environment. Usually the results are presented in relative form only, by comparing the standing of a given college with a norm based upon other colleges. However, information about the student body may have some absolute meaning, in terms of how many students say they have done this or that. Some of these procedures provide interesting information and contribute to an understanding of the student body. However many educators still recognize the need for a method to provide more specific information, relevant for educational-administrative decisions.

The procedure referred to here provides a measure of students' generalized attitude toward the institution, and student perceptions of specific aspects of the campus milieu. Following are some of the features of this procedure. (1) Items are in the form of questions (rather than statements), and answers are in terms of alternatives which are meaningful to respondents (students) and consumers (educational administrators). (2) Alternatives form five-point itemized rating scales (in contrast to the dichotomous or three-point scale typically used), with unusually high reliability for the form of information reported (representative reliability coefficients greater than .95). (3) Answers have some degree of absolute meaning for a given college, without the necessity of comparison with a norm of other colleges. (4) Information is provided about specifics--important aspects of the campus milieu which affect students and are of concern to the administration and faculty, e.g., study atmosphere of residence halls, intrinsic interest of courses, meals, registration, advising, sources of specific worries, opportunity for participation in social activities, avenues of communication with administration, etc. (5) Quantitative indexes are provided for comparing the relative effectiveness of various aspects of the campus milieu, and change of effectiveness over time. Also, colleges and components of colleges may be compared with each other or a norm.

The items referred to in this report are from a questionnaire entitled "Reactions and Adjustment to Campus Environment Questionnaire." It was developed for the joint purpose of assessing social-emotional adjustment and academic adjustment of individuals, and for obtaining students' collective perception of various aspects of the campus milieu. The use of this instrument to measure individual adjustment is described in Appendix A. The report of Appendix D is devoted to its use for assessing student perceptions of the campus milieu. Use of the instrument for this purpose was demonstrated with data collected from the USOE project, but from other resources after the termination of the funded portion of the USOE project. The objective of this part of this report is to point out the need for systematic representation of student perceptions of the campus milieu, and to demonstrate two ways in which it can be done. It is hoped that this will be useful in generating this kind of information at colleges and universities, whether obtained by this method or some other approach.[2]

Summary of the method. This method, described in more detail in Appendix D, is described briefly in the following three paragraphs.

Student perceptions of various aspects of the campus milieu are obtained by their responses to questions, with response alternatives which form a five-point scale of satisfaction-dissatisfaction or favorable-unfavorable reaction, with scores ranging from 1-5 and a neutral point of 3.00. Averaged student reaction to any aspect of the campus milieu provides a Satisfaction Index on this scale. The Satisfaction Index is interpreted in terms of its standing on this satisfaction-dissatisfaction continuum, using the neutral point as the main frame of reference. The Satisfaction Index indicates the most prevalent reaction. Further perspective may be gained by studying the frequency distribution to determine the complete pattern of reactions to a given aspect of the campus milieu.

Comparisons may be made from one time period to another, or from one segment of the student body or college to another. When normative data are collected, this will provide still another frame of reference for administrators to use in assessing the effectiveness of various aspects of their college. However, a unique characteristic of this method is the meaning provided by the scores without reference to normative data. This includes Indexes of Relative Satisfaction which provide a quantitative comparison of the relative effectiveness of various aspects of the campus milieu.

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[2] The method and the Reactions Questionnaire referred to here and described in more detail in Appendix D are undergoing further development. Further information about this and the manual for obtaining and coding students' answers to open-end questions may be obtained by contacting the author.

Reliability coefficients of Satisfaction Indexes range from .94 to .98 for samples of approximately 100 students, and should be even higher with more representative sampling of larger samples. In short, reliability of student perceptions of the campus milieu is quite high when measured by the method described in this report. Although some individuals might have unique experiences and opinions for any given aspect of the campus milieu, the high reliability coefficients indicate that the prevailing student perceptions from a sample of this size yield conclusions quite similar to those obtained from other samplings of similar students.

Some illustrations of the kind of information obtained from the method. The following paragraphs summarize some of the information from the technical report of Appendix D to illustrate how the method may be used to provide systematic feedback from students. Although this is mainly in narrative form, it should be noted that the satisfaction indexes and frequency distributions (i.e., the data converted to a meaningful, quantitative form) would need to be seen for a more precise understanding of the reactions of a given student body.

In considering the paragraphs below it should be kept in mind that this data was obtained from a sample of students who were not completely representative of the student body, and that their perceptions refer to a specific time period, i.e., for the present purpose the following paragraphs are given only as examples of the kind of information obtained.

The generalized reaction (combined reaction toward all aspects of the campus milieu) was 3.47 in the fall and 3.34 in the spring, to the positive side of neutral both quarters, but less positive in the spring than in the fall. Nevertheless, for an aspect of the campus milieu close to the general mean, this still leaves approximately 25% of the students who are dissatisfied or have a negative perception of that aspect of the university's functioning. Their perceptions of some aspects of the campus milieu are more favorable than this, and their perceptions of other aspects less favorable. The generalized reaction may be used as a frame of reference (in addition to the neutral point of 3.00) for comparing the relative effectiveness of various aspects of the campus milieu.

In the academic area, the prevailing student perception is one of satisfaction with courses and academic requirements

(Indexes of Relative Satisfaction of +.41 and +.40 fall, and +.28 and +.35 spring). This is in spite of numerous specific problems with courses cited in students' answers to open-end questions. So it appears that students are responding to these objective items in terms of realistic expectations rather than what they ideally would hope to find.

The academic area which is perceived least favorably is the system of counseling and advising (-.58 Index of Relative Satisfaction in the spring, with 20% "very dissatisfied"). As feedback for educational administrators, these student perceptions would indicate that special attention needs to be given to the program of advising.

"Enjoyment" of courses fares less favorably (than "satisfaction" with courses and academic standards) when compared with generalized reactions (Indexes of Relative Satisfaction of -.36 in the fall and -.35 in the spring), while the boredom with studies increases from fall to spring (-.45 Index of Change and -.32 Index of Relative Change). Other data from this research program indicates that the source of this lack of enjoyment and boredom with studies lies at least partly in the students' motivation. However it may also be a function of how some courses are taught and the assignment of courses. The important point for the present purpose is that these student reactions suggest that the interest (or rather, lack of interest) generated by courses is an area which needs closer examination than some other academic areas.

Compared to their satisfaction with courses and their generalized reaction, students express dissatisfaction with their own academic accomplishment (Indexes of Relative Satisfaction of -.54 fall and -.35 spring). This is related to difficulty concentrating on studies and avoiding distractions (Relative Satisfaction Indexes of around -.35 fall and spring). In contrast to worry from other sources, there is considerable worry about studies and course work (Relative Satisfaction Indexes of -1.12 and -.84). These findings about students' difficulty in studying effectively are consistent with other data from the research program.

Also, in comparison with other sources of worry, many students worry about their career plans (Relative Satisfaction Indexes of -.73 and -.56). This suggests the need for improved career planning and counseling resources to help students channel their talent more effectively. The need may be for more facilities, improved facilities, or more accessible facilities for career planning. The important point for the present purpose is that the data indicates this as an area which needs closer scrutiny and planning.

Student reactions were most negative to several aspects of the campus milieu in the realm of administration and personnel services. Most consistently negative were perceptions of the university's lack of interest in the individual person, with the majority feeling alienated, that there is little interest in the individual person, and a sizable number feeling like little more than a number (-.95 and -1.01 Indexes of Relative Satisfaction). Related to this were increasingly negative perceptions of the opportunities available for students to communicate upwards and have their views taken into account (-.37 Index of Relative Satisfaction fall, -.76 spring), with twenty-four percent of the students "very dissatisfied" in this respect. Alienation and lack of communication are problems which often are associated with the vastness of a large university. From this data it appears that these are areas which need considerable attention from educational administrators. Perhaps it is more difficult (than in other areas) to provide satisfying experience in these areas. Problems in these areas may be inevitable in a large university, and improvement difficult to achieve. However, it should provide useful perspective for educational administrators at a given institution to have norms of student reactions from other colleges and universities for comparison of what is, and what can be.

It is interesting that rules and regulations, the aspect of the campus milieu which receives the most negative publicity, is perceived less negatively than other aspects in the realm of administration and personnel services. This lends credence to the view that students are discerning in their responses to the items. Also consistent with this view is the fact that student perceptions of registration became less negative from fall to spring (from -1.08 fall to -.41 spring) paralleling an administrative procedure to increase the efficiency of registration, while their perceptions of other aspects of administrative functioning were becoming more negative.

Students tended to be satisfied with accommodations in the dorm and dormitory life fall and spring. However decreased satisfaction from this source comes with time, as students achieve social adjustment with their neighbors and turn elsewhere for social satisfactions.

Although noises and distractions in the residence hall became less of a problem in the spring (than in the fall), the data indicates that this was a major problem both quarters. This finding agrees closely with data from observations, interviews, and answers to open-end questions.

Students' perceptions of their peers tended to be quite positive, compared with other aspects of the campus milieu. However there was less satisfaction in the areas of dating and extracurricular activities, which tended to improve in the spring (paralleling a turning away from the dormitory as a source of social satisfaction). In terms of absolute scores, it appears that the majority of students perceive the various aspects of their social-emotional adjustment as positive, while there are still a moderate number of students with adjustment problems.

Conclusions. Student perceptions of the campus milieu can be measured with high reliability by the method described. This method provides systematic information about student reactions to specific aspects of the campus milieu, as well as students' general attitude toward the institution. This or a similar approach would seem useful for administrative feedback, not only to aid in crisis prevention, but to assess the relative effectiveness of various aspects of the campus milieu and new innovations. However this feedback will be useful only if reactions are obtained from a fairly representative cross section of the student body (or from known and specified categories of students).

Supplementary form of feedback. Students' answers to open-end questions provide a useful supplement to data obtained from the method described above. Although this source of data is not in as objective a quantitative form nor as efficient, students' answers in their own words provide the educator with a feel for students' perceptions and opinions, and in some cases provide new ideas for solutions. The time-consuming aspect of content analysis can be reduced by taking a more limited but representative sample of student reactions (than with the more efficient method described above) and by having students respond to specified aspects of the campus milieu. In order to illustrate this, listed below are some brief quotes from students' answers to open-end questions about several aspects of the campus milieu (areas assessed by objective items described above). Quotes from students' answers are given below for four areas of administrative functioning, to illustrate this supplementary form of feedback.

In reaction to a question about "flexibility of administration to meet student demands" students' answers were mainly positive or mixed, as illustrated by the following quotes.

> In this area the administration is doing a better job, meeting more of the legitimate demands of the students.
>
> Seem fairly flexible.
>
> There is some flexibility.
>
> I think the administration is very open minded and it is good at this time.
>
> The administration does a good job of listening to students. They have changed many things including curfew for girls.

> Has improved in the last year.
>
> Many student demands are outrageous.
>
> This is usually true (flexibility of administration)--but there are some instances when the administration needs to give more.
>
> It's coming around, but the administration is so afraid to break tradition on something that it will only cost more money later.

In reaction to an open-end question about "communication between administration and student body" students' answers were mainly negative or mixed, as illustrated by the following quotes.

> The communication between the student body and the administration is lacking because the administration listens only to what it wants to hear.
>
> None in my opinion except mailing grades.
>
> Very poor. They don't like to talk to you.
>
> This is lacking.
>
> What communication? The administration seems to be too concerned about other things.
>
> Lacking because the administration does not seem to take an interest in students.
>
> This is pretty poor since I don't feel that there is any real understanding between the two.
>
> Should work closer together.
>
> Poor to fair--there is some in student government, but again little between the individual student and his government.

In reaction to an open-end question about "effectiveness of advisors to students" students' answers were mainly negative, as illustrated by the following quotes.

> Usually do not know the information or are not interested in the students.

> Advisors need to be more experienced in your particular school.
>
> Competence is *very* poor on the part of my advisor. He doesn't know anything about my program and further more he doesn't seem to care.
>
> Ineffective. The entire advisory system should be reorganized. More personal contact needed.
>
> The advisers are very poorly prepared to advise anyone. They don't know requirements and most are not willing to take the time to find out.
>
> A student should have more time with his advisor.
>
> They seem indifferent or unable to understand my problems.
>
> Terrible! Advisors in general are doing a very poor job and I have been misguided by them.
>
> Advisors are generally competent, though they may not be effective in their ability to understand the student.
>
> I like my advisor very much as a person but she never offers help. I always have to go to her. I had to plan out my whole schedule and call her so I could pre-register.

In reaction to an open-end question about "registration" students' answers were mainly negative or mixed, as illustrated by the following quotes.

> Registration is terrible. No one knows what to do or where to go or when they have finished. Some improvements should be made.
>
> Registration is one big mess. Something should be done to keep it smooth running. Too many people.
>
> It is very confused. It seems to be a mass of people who don't know where they are going. I feel it could be better organized.

> Very poor. Registration ought to be handled before the quarter ends. The University ought to register students throughout the quarter.
>
> Much better now since computerization. I see no reason why cards can't be mailed and avoid having to come into the coliseum altogether.
>
> OK only problem is standing in line for several hours.
>
> Pre-registration is a great idea and ends much confusion.
>
> As good as could be expected from such a large school. Dissatisfied with inability to have classes which one has preregistered for, so senseless to preregister.
>
> Getting better. Seems that it could all be done during preregistration with advisor.

The more complete set of quotes in the technical report of Appendix D provides a better view of the variety of experiences and perceptions of the student body concerning any given area. From the prevailing views, shown above, it is interesting that the students' reactions were so different to two closely related areas--the administration's flexibility in meeting student demands, compared with communication between administration and student body. The positive reaction toward the administration's flexibility in meeting student demands reflects several changes made within a few months prior to collection of this data--liberalization of rules and regulations, increased recognition of student government, and relatively smooth handling of a confrontation with a radical student group. As found in students' responses to the objective items of the Reactions Questionnaire, these responses in the students' own words indicate that they are discerning in their feedback and give credit where it is due. The answers concerning lack of communication, as much as anything else, support the need for a systematic approach for obtaining feedback about student perceptions of the campus milieu (along with the need for more personal contacts with students). Students' answers (above) about advising and registration indicate that feedback in their own words provide constructive ideas to supplement the more systematic and objective form of feedback obtained from the Reactions Questionnaire.

Pitfalls and Hints on Doing Action Research in Campus Communities:

The report of Appendix **E** is intended as a set of suggestions and partial check list for researchers and administrators making changes or collecting data in field settings. It is introduced with some of the problems encountered in conducting this research project in a university setting, but refers to similar problems observed by the author and reported by both experienced and inexperienced researchers and administrators in other settings. For the researcher experienced in field settings (or the administrator experienced in collecting data or introducing and evaluating changes of a quasi-research nature) there may be little new, but it may serve as a set of reminders. For the less experienced researcher or administrator involved with changes or data collection in field settings, some of the points may contribute awareness of possible pitfalls and sources of inefficiency, with a few hints for avoiding or overcoming them. Some of the topics are listed below, taken from the complete set of Appendix E.

It is essential to obtain administrative support from appropriate levels before initiation of a project. This is usually recognized, but follow-through is less common. Usually the project, even if just collection of data, will have some effect upon the organization. And, if a change of some kind is to be made there will need to be administrative time allocated for carrying out or arranging the various activities, including an allowance for unforeseen contingencies. It is useful to plan from the beginning how the organization may be effected, what administrative arrangements must be made by whom, etc., and have written commitments that these needs can be met. Otherwise the project may suffer from inadequate administrative endeavors, or frustrations or other repercussions may arise. This also points out the need of periodic coordination between research staff and administrative staff, using a written flowchart as a frame of reference.

A flowchart of what is to be done by whom (far more detailed than required in the time table requirements of granting agencies) can help in planning, and in forecasting possible delays. Consultation from others, which is usually reserved for the content and methodological aspects of research projects, would be useful in considering these practical planning aspects.

Priorities and other requirements necessary for successful completion of the project should be included in the plan, or later demands could change conditions which effect the project, or project activities suffer by default. Sometimes, when there are unplanned delays or last minute initiation of a project, it would be better to scrap the project entirely (rather than waste resources on an ineffective project), or do it only if demands for sufficient planning and organizing time are met.

Several bottlenecks adversely affecting many projects were considered. These bottlenecks are activities or resources which are required for the routine operation of the project, but which are usually given too little consideration and inadequate allocation in planning the main foci of the project. Inadequate planning and allocation of these activities and resources often leads to delays and setbacks which adversely affect major goals of the project or strain public relations. These bottlenecks include typing facilities, computer processing of data, report writing, and availability of staff with appropriate experiences.

Also considered were some of the problems involved when people have to be moved (to a different residence, different office, etc.). The need for rehearsal and dry runs was pointed out for procedures, computer programs, etc., when the timing is crucial or a mix-up is likely, or when a mix-up would have an adverse effect if it did occur. Also considered were obligations to "subjects" or participants, ways to secure and maintain their cooperation, including appropriate public relations.

The Main Personality Variables--"Health-Engendering Personality" and "Responsibility":

These two variables were derived from factor analyses of peer ratings of personality traits and interpersonal behaviors, and are based upon psychological-logical considerations as well as upon empirical relations. Scores on these variables are obtained by averaging ratings received from several peers on the various items making up the Health-Engendering Personality category and the Responsibility category. These are motivational or influencing variables, which have social as well as theoretical significance.

A Health-Engendering Person (HEP) is a person who typically engenders positive mental health in his associates through his informal interaction with them. The HEP scale is composed of items which reflect the characteristics of consideration for others, warm and close interpersonal relations, trust of others and positive expectations of them. In the original study construct validity of the HEP variable was demonstrated by positive correlations with a measure of interpersonal perception reflecting esteem for others, and with sociometric choices for the role of confidant--a person whom peers feel comfortable and at ease with, and whom they would choose to discuss their personal problems. In a previous field study Health-Engendering Personality of college students was found to contribute to the adjustment of their roommates, and in a field experiment psychiatric aides with high HEP scores engendered significant improvement in their patients.[3]

The Responsibility variable is defined by traits that are consistently correlated together--e.g., hardworking and industrious, dependable, can be counted on, serious, efficient, uses good judgment, energetic, mature. The term "Responsibility" is developed from the things they have in common--one may think of intersecting points of an underlying characteristic which is manifested in all of these behaviors. Responsibility seems to be a motivational variable referring to a conscientious and systematic approach to work. For example Responsibility is correlated .40 with amount of time spent studying, but should not be thought of simply as work habits. Self-discipline, self-control, conscientiousness, or industriousness are alternative labels that might be used for this variable. However, considering correlations of this variable with some other variables, "Responsibility" seems to fit best. This Responsibility is not self-centered, but may be considered as responsibility in a broader social sense, as reflected by substantial correlations between Responsibility items and consideration for the feelings of others, and negative correlations with tendency to disturb and bother others. Responsibility has consistently high correlations with sociometric choices for leader and co-worker. Responsibility is a characteristic considered relevant for success and for making a useful contribution to many endeavors important to society. The Responsibility variable has consistently correlated high with college grade point average.

Comparisons of Men and Women in Peer Ratings of Personality:

"Sugar and spice and everything nice is what little girls are made of..." is one way folklore has characterized the female in considering differences between the sexes. Folklore has held that women are more timid, warm, tender, loving, and emotional than their male counterparts. These alleged differences in characteristics between the sexes have been partially supported through descriptive research. However, it is not unusual for researchers to ignore differences between sexes. And for this reason much of the research utilizing measures developed for one sex may not be relevant or generalizable to the other sex. For example, reviews of published articles indicate that many investigators fail to test for sex differences when both sexes are used as subjects, but in the majority of the cases where they are tested the differences between sexes are statistically significant.

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[3] For practical purposes "HEP" can refer to Health-Engendering Person, Health-Engendering Personality, or the category or scale on which Health-Engendering Personality is measured, depending upon the context.

The Health-Engendering Personality and Responsibility peer rating variables described above, as well as an Adjustment variable, have been useful in investigating social interaction and adjustment of men college students. Research by others with peer ratings has also been confined mainly to men (usually conducted by male researchers, often supported by the military). But how general are the variables and findings from this research when applied to females? It seems equally important to study the effect of student interaction and campus environment upon the learning and adjustment of women college students. But a question arises as to the comparability of the measures between male and female students. Relatively little research has been done regarding sex differences in peer ratings, but sex differences found in other areas would lead one to expect sex differences in peer ratings.

The objective of the study described here was to compare peer ratings of women and men college students--partially as a basis for extending the research to women college students, and as an important question in its own right. The question was investigated from two viewpoints: factor structure or organization of traits, and mean differences between the sexes on these traits. The results from the technical report of Appendix B are summarized below.

From factor analyses of data from women college students and men college students, the personality (factor) structure appears remarkably similar between the sexes, as well as corresponding to the factors derived from the original factor analyses in another setting. Coefficients of congruence of .96, .91, .93, .82 provided an objective measure of the high degree of similarity of factor structures for men and women.[4]

A comparison of mean differences between sexes indicated that women tend to rate their peers significantly higher on positively worded items, but there was no significant difference between sexes on negatively worded items. More detailed analyses led to the following interpretation. Women tend to perceive others more favorably in general, i.e., tend to have a more positive orientation toward others than do men. However women appear to be more discerning in their peer ratings than men, at least in willingness to describe their peers' negative traits objectively.

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[4] Further details may be found in Appendix B. A point not noted there is that there was no separate Socially Adept factor (as there was from the factor analyses reported in Appendix A), since there was only one socially adept item common to ratings from women and men. This item loaded on the Adjustment factor. However, as noted in Appendix A, there appears to be a moderate degree of independence between the Social Adeptness variable and the Personal-Social Adjustment variable.

A further test of the relevance of these measures for women college students was made by a validation study. Several of the more clearcut relationships which had been found for men were tested for the women's sample. Pooled peer ratings (mean ratings received from several peers) on the Responsibility, Adjustment, and Health-Engendering Personality categories from fall quarter ratings were utilized as predictors. Responsibility correlated .42 with yearly grade-point average, and .37 with sociometric choices received for filling leadership roles. Mean peer ratings received on Adjustment correlated .36 with self-ratings on Adjustment and had a similar correlation with self-esteem. Health-Engendering scores correlated .38 with sociometric choices for filling the confidant role, and .49 with ratings of roommate compatibility. The results of these validity analyses are quite similar to those found with men college students described in Appendix A and in the original residence hall study (Alsobrook, 1962).

In summary, there are some differences in peer ratings of males and females, mainly in favorableness of interpersonal perception and degree of discrimination in rating. However the factor structure for these personality variables is quite similar between sexes, and these measures appear quite relevant for investigating the effects of student interaction with women college students.

Validity of Ratings as a Function of the Number of Raters:

Ratings, of one form or another, are among the most frequently used methods of psychological measurement--for example, ratings of student characteristics, achievement, leadership, teacher effectiveness, job performance, etc. Most typically the "expert" judgment of a single authority or superior is used, although pooled (averaged) peer ratings usually have greater predictive validity. Pooling the ratings of several judges has the advantage of balancing out individual response bias, and if the judges are peers there is the additional advantage of having raters who have a good opportunity to observe the characteristic behavior of the ratee in a variety of situations.

Only self-report measures, usually in the form of personality inventories or self concept scales, have been more widely used than ratings. In research studies which have compared the three approaches, pooled peer ratings have usually been found to have higher validity with outside criteria than self-report measures and ratings by single judges. In fact, ratings are quite often used as criteria against which to validate self-report measures, including such widely used personality inventories as Cattell 16-PF, Edwards PPS, Gough CPI, and Guilford-Zimmerman Temperament Scale.

Guilford (1954) suggests that one of the advantages of pooling the ratings of several judges is the cancelling of individual response biases and recommends that reliability should increase as the number of raters is increased, but as a negatively accelerating function. However, there is little research on the pooling of personality ratings, nor is this approached from the standpoint of validity (in contrast to reliability) of theoretically relevant variables. The purpose of this study was to investigate the validity of peer ratings with different numbers of judges. The approach was to correlate ratings by different numbers of judges with an outside criterion, for which there was a known relationship between the peer rating variable and the criterion.

In three separate samples at two universities a strong relationship has been found between pooled peer ratings on Responsibility and grade-point-average, typically higher than .40, which is strong enough to rival the relationship between academic aptitude tests and grades. Based upon this repeated replication we had the known relationship needed as a criterion for this study. As pointed out above a consistent correlate of Health-Engendering Personality (HEP) is number sociometric choices received for the role of confidant. For this study peer rating on HEP was used as a second predictor, and sociometric choices for confidant was used as the criterion. The procedure and conclusions of the technical report of Appendix C are summarized below.

The main data for this study consisted of multiple peer ratings made by students in a college men's dorm. For each subject sets of one, two, three, and four peer ratings were randomly selected from the five sets of ratings. Thus, the sample of subjects (recipients of the ratings) was held constant, but five sets of ratings were varied--from one, two, three, four, and five peers. For each subject Responsibility and HEP scores were calculated separately for each of these five sets of ratings. These were the predictor variables. For Responsibility the criterion was yearly grade-point-average (GPA), and for HEP the criterion was number of sociometric choices received for the role of Confidant.

Results indicated that the correlation between Responsibility and GPA increased from .24 when one rater is used to .38, .44, .47, and .51 (respectively) for two, three, four, and five raters. The correlation between HEP and Confidant increased from .17 with one rater to .40 when HEP scores were based upon the pooled ratings of five peers. The increase in size of validity coefficients increased with the number of raters as a negatively accelerating function, i.e., there was a diminishing rate of return from the inclusion of additional raters. However there were still moderate increases of validity with inclusion of the fourth and fifth raters.

In the report of Appendix C, also, two other questions were examined. Validity of self rating was compared with the validity of pooled peer ratings, using ratings on Responsibility and the GPA criterion. Validity of peer ratings was also considered from the standpoint of how well the subject was known by comparing ratings by roommates (who knew subjects well) with ratings from peers who knew them less well, and by comparing fall quarter ratings with spring quarter ratings (when peers had gotten to know each other better than in the fall). For these analyses, too, rating on Responsibility was used as predictor and GPA used as criterion.

At least for Responsibility pooled peer ratings have greater validity than measures derived from self reports. That contention was supported by the findings in this study--self-ratings on Responsibility predicted GPA no better than ratings on Responsibility by a single peer, and far less well than ratings averaged from several judges. How well the rater knows the ratee makes a difference too. For example, greater validity was found in the spring than in the fall; ratings (on Responsibility) from roommates predicted GPA better than did ratings from individual peers who knew the subjects less well.

In summary, we may draw the following conclusions from this research. (1) Pooled peer ratings have greater validity than self report measures (on characteristics which are based upon observable behaviors meaningful to the judges).
(2) Greater validity is obtained from judges who know the subject well (have had greater opportunity to observe him) than from judges who know him less well. (3) The validity of peer ratings increases with the number of raters, but as a negatively accelerating function. In other words, substantial gains in validity accrue from pooling the ratings of several judges.

These results carry the implication that greater validity would be achieved in many studies if pooled ratings of relevant characteristics were used instead of alternative approaches that are more commonly used, and if pooled ratings of several judges were substituted for ratings by a single judge. With this measurement approach we would expect, for example, stronger relationships between personality variables and other theoretically relevant variables. This study also suggests that pooling the ratings of several judges is one of the more useful criteria for validating other kinds of measures.

Pooled rating of several judges on relevant variables appears to be a generally useful form of psychological measurement. We believe that the dissemination and application of this finding is important in increasing the validity of research by personality researchers, and by educational researchers concerned with any judgmentally derived variables. For example, the selection of instructional material and questionnaire items are usually based upon the intuitive judgment of one or a few individuals. The present research suggests that the intended purposes might be met better (the judgments would be more valid) if the selection criteria were developed into ratings, and the ratings of at least five judges pooled. This is assuming, of course, that the judges are capable of making the called for discriminations on relevant characteristics, and that the validity of the procedure be checked for different kinds of judgments and objects to be judged. This procedure has been used with success by the author and a colleague, for example, with judgments of creativity and educational efficacy of material for instruction of beginning readers.

Responsibility and Academic Achievement:

It appears that prediction of academic achievement with intellective variables has reached a ceiling, so investigators have turned to personality variables which may be related to academic success. Usually the question, in considering the relevance of non-intellective predictors of grades, is whether the relationship is significantly different from zero, rather than whether the non-intellective predictor rivals the verbal and quantitative college aptitude tests in predicting grades. In most of the cases where substantial correlations have emerged between personality and grades, it turns out that the relationship is not replicated when tried with other samples. Most of the personality variables used for predicting grades have been self-report measures, usually derived from various personality inventories.

Our research project has utilized peer ratings on the Responsibility variable described above. The Responsibility variable represents characteristics such as hardworking and industrious, dependable, efficient, etc., which reflect self-control and conscientiousness--characteristics which theoretically should contribute to academic success.

In a previous study at another university, Responsibility was correlated .50 with grade point average (GPA), which was a better prediction of grades than obtained with intellective predictors. The results of that study appeared promising, but it was important to replicate the relationship in another setting and with a larger sample. That is essentially what the study described in the technical report of Appendix F was intended to accomplish.

For a large sample of freshman men, fall Responsibility scores correlated .37 with yearly GPA, which was lower than in the original study but still worthwhile. However Responsibility measured in the spring (which probably had greater validity due to peers having a better opportunity to observe each other) was correlated .52 with yearly GPA, higher than the prediction of GPA with any of the intellective predictors and high school average. Multiple correlation with intellective predictors and high school average, however, further boosted the prediction of grades from Responsibility.

With a sample of 103 women students, fall peer ratings on Responsibility correlated .42 with yearly GPA, which was better than any of the intellective predictors. For a sample of 60 freshman men, participating in a program of research which should increase the carefulness with which they made their ratings, the correlation between spring Responsibility and GPA was .67. This correlation rose to .71 when a special rating-ranking procedure was used.

In summary, there was a consistently high relationship between Responsibility and GPA in all samples tested, with Responsibility predicting GPA better than intellective predictors in most cases. As indicated above (and in Appendix C), pooled peer rating provides a more valid Responsibility score (in terms of predicting GPA) than self rating; however, self rating on Responsibility predicts GPA better than other self report personality variables. In another analysis dropouts were found to have lower Responsibility scores than non-dropouts (see Appendices F and K).

Although GPA has been criticized as a measure of college education, it does not seem unreasonable to expect the responsible student to learn the intangibles of a university education as well as the things that contribute to good grades. It has been pointed out that grades have only moderate to low correlations with success in latter life--actually the size of the correlation depends upon which area of success is under consideration. One thing that responsibility and academic achievement have in common is hard work and ability to adapt to standards. This is illustrated for Responsibility, for example, by a substantial correlation with amount of time spent on studies. More important, responsibility is considered an important characteristic for success outside of college. Consider, for example, the substantial relationship between Responsibility and being chosen by associates for co-worker and leader, and the reduced likelihood of becoming a dropout. In short, the relationship between responsibility and effectiveness seems to have generality beyond the scope of college grades.

The most obvious implication from this research concerns the utility of Responsibility as a predictor of academic achievement. For selecting students, at least in special cases, Responsibility may be more relevant than intellective predictors since it reflects the student's motivation and effort. Responsibility should be especially useful in selecting promising students who appear to be poor risks due to inadequate high school preparation which is reflected in traditional measures of academic aptitude. Responsible characteristics are more under the control of the student--characteristics which should be amenable to training, verbal appeal, and other forms of influence.

For years our society has taught young people the axiom that, "You must work hard and industriously and be dependable, if you want to get ahead." However, this axiom has co-existed with contrasting principles such as, "It's not what you know, but who you know that counts." With this and other formulas for success bidding for attention, it is not surprising that there are wide individual differences in the extent to which students develop an industrious and responsible approach to their work. Because the reinforcements from our educational system are so remote in time, it is difficult for the student, and even for his teachers for that matter, to assess the relative merits of following one success formula rather than another. Our data may be interpreted to provide reinforcement for the hardworking and industrious college student--that the result is worth the effort.

Following this logic, these findings have implications for student personnel practices. It is not uncommon to counsel students about the importance of working hard and industriously. These findings may be used to support such advice and make it more plausible, even reporting to students the relationship between responsible behavior and success.

A further implication is suggested by the fact that Responsible students are both effective in their work and endorsed by their peers as co-workers and leaders. It would seem useful to identify and provide support for Responsible students in formal or informal endeavors to bring about greater student responsibility in general, to serve as models for other students, and help other students develop more responsible study habits.

Effects of Health-Engendering College Students upon the Adjustment of their Roommates:

Although little understood, peer influence appears to be a major factor affecting the learning and adjustment of college students, for better or worse. Residence halls, where college students spend the greatest portion of their time, appear to be one of the main settings where this influence occurs, especially for freshmen. This report describes a field study of one of these sources of peer influence--the effects of Health-Engendering People (HEPs) upon the adjustment of their college roommates.

This research was based upon an earlier research study conducted with transfer students in a college men's dorm. The HEP variable and its validation was described in a section above--in brief it is characterized by consideration for others, warm and close interpersonal relations, and trust and positive expectations in others. The HEP scores usually used are mean ratings received on these characteristics from several peers.

The greatest practical implication from the previous research was the finding that roommates of HEPs were more likely (than average) to improve in mental health and grades, while roommates of students with low (or health-depressing) scores were more likely (than average) to have lower adjustment and grades. However some of the relationships were of borderline statistical significance. In a later field experiment in a psychiatric hospital, patients assigned to a ward with high health-engendering aides improved more than patients in average wards, but only when there was an opportunity for informal social interaction between aides and patients. From these two studies it appeared that health-engendering personality is generally useful for understanding informal interpersonal relations which facilitate positive adjustment and development.

Considering the theoretical relevance and the practical implications of the Health-Engendering Personality variable for the positive development of college students, it was considered important to replicate the study in another university setting. That was the objective of the present study--to analyze the effect of health-engendering college students upon the adjustment and grades of their roommates. The study was conducted during the first quarter of the freshman year, a period which is especially important for the adjustment of students to college.

The analyses for this study were based upon the roommate pair. The statistical model was to correlate the HEP score of one roommate with each of the 17 adjustment scores of the other roommate. The details of the method and results are described in the technical report of Appendix G.

To summarize the results, there was a clear-cut and consistently replicated relationship between subjects' HEP scores and various aspects of their roommates' social-emotional adjustment. Although the amount of variance accounted for by this relationship was relatively small, increased confidence in this conclusion was gained from the fact that the relationship held when adjustment was measured by three forms of self report and two forms of judgments from others, and was replicated for mutual choice pairs of roommates and randomly assigned pairs of roommates. However subjects' HEP scores were not related to their roommates' academic adjustment, and had a borderline relationship with a measure of their attitude toward the university.

As indicated above, roommate ratings in the fall quarter are somewhat less valid than averaged ratings from several peers. However the roommate rating on HEP fared as well as pooled peer ratings on HEP (in relation to the social-emotional adjustment of roommates). This indicates that when we are concerned with a person's effect upon his roommate, it is more important to consider how he acts toward his roommate (and is thus perceived and rated by his roommate) than how he acts toward peers in general (and is perceived and rated by them).

A separate set of analyses were calculated involving dropouts. Scores used for the analyses were HEP scores of the dropouts' roommates. It was predicted that dropouts' roommates would have significantly lower HEP scores (would be less health-engendering, more health-depressing) than a control group whose roommates did not become dropouts, and that they would become less health-engendering (more health-depressing) from fall to spring. Summarizing all the analyses together, we have the following picture. Students who become dropouts are more likely than others to start off the year with roommates who are low on health-engendering characteristics. If they did not drop out before spring quarter, their roommates became less health-engendering during the year, or they changed to a roommate who was less health-engendering than their original roommate. They ended up the year with roommates who were less health-engendering (more health-depressing) than average. If we consider this as a causal relation, it appears that health-engendering people do effect their roommates in such a way that they are more likely to remain in college, while health-depressing students influence their roommates to become dropouts.

To summarize the data, Health-Engendering Persons (as here defined) do engender positive mental health in their freshmen roommates during that important first quarter of college. They facilitate several aspects of their roommates' social-emotional adjustment, reduce the chances of their becoming dropouts, probably contribute to positive attitudes toward the university, but have little influence upon their academic achievement.

In order to understand these results better it should be useful to consider the process by which this influence occurs. A Health-Engendering Person is characterized by consideration for others, trust and positive expectation in others, and warm interpersonal relations. One would expect direct consequences of these behavior tendencies (for his roommate) to include happiness, compatibility in the roommate relationship, positive self concept, freedom from tension and anxiety, and opportunity to practice effective social skills. We would expect these positive expectations and social skills to transfer to other social situations, leading to social acceptance and success in social relations.

Positive effects that a HEP might have upon his roommates' scholarship would be indirect in the sense of freeing him from worries in the social-emotional area. Due to his consideration for others a Health-Engendering Person would provide a quiet study atmosphere for his roommate and encourage him to study, if the roommate showed a desire and interest in scholarship. However, Health-Engendering People are not especially oriented toward scholarship themselves (the intrapersonal correlation between own HEP score and GPA tends to be zero). Therefore, we would not expect the relationship between Health-Engendering Personality and roommate's academic achievement to be large, unless other conditions were included to increase scholarship motivation. Expressing this in a more positive way, we would expect Health-Engendering Personality to have the greatest impact upon the development of college students when used in conjunction with some process to increase scholarship motivation.

It may be postulated that over a longer period of time students with health-engendering roommates gradually increase their scholarship orientation as their social-emotional adjustment becomes stabilized. For students with health-depressing roommates, in whom social-emotional adjustment continues as a major concern, continued lack of satisfaction in this area will keep them preoccupied so that scholarship suffers by default. Thus, after a longer period of time together (than fall quarter, to which the main analyses were limited), we would expect a positive relationship between health-engenderingness of roommate and scholarship. Although this was not tested directly in this study, we did find that dropouts have roommates who are significantly less health-engendering (than average) during the spring quarter. From data reported in Appendix K we find that dropouts are characterized by below average academic orientation and achievement. Indirectly, then, the dropout analysis confirms the expectation expressed above.

From this field study, combined with the previous research in this area, the utility of the HEP variable for engendering mental health in others has been fairly well confirmed. A direct application of this principle could be made by a college health service or guidance and counseling service. They would need to identify HEPs. Then arrange for students with adjustment problems to have increased opportunities for interacting with HEPs, and help them avoid health-depressing roommates and other associates. This might be arranged most effectively through dorm assignments, or could be arranged through the membership of discussion groups. It would be useful, however, to combine this application with further research to evaluate the effects of various arrangements. Also it would be useful to combine this with research on dorm conditions which engender a favorable study atmosphere.

Roommate Compatibility--Measurement, Test of the Similarity Hypothesis, and Relationship with Adjustment:

Compatibility with one's roommate is considered important by most college students. Since the roommate is one of the most pervasive sources of influence for the college student, it seems that compatibility should be one of the main factors contributing to satisfaction and happiness at college.

Although most people believe they know what "compatibility" means, and probably have a fairly common meaning, there is no well defined and widely accepted definition of compatibility in the research literature. In fact there is relatively little research on the topic. Most of the literature relevant to this topic comes under the headings of "group cohesiveness" and "interpersonal attraction." Since there is some question about various methods of measuring attraction (whether under the topics of group cohesiveness, interpersonal attraction, or compatibility), one of the objectives of this research was to determine the relationship among several alternative measures of compatibility. Although some of these measures were derived from the areas of interpersonal attraction and group cohesiveness, they may be considered as measures of roommate compatibility, since the measurement occurred during and pertained to the ongoing roommate relationship.

The research on interpersonal attraction has been concerned mainly with the antecedents of attraction (rather than the effects of attraction), and has centered upon two hypotheses or principles. The "similarity hypothesis" postulates that attraction to another person is based upon real or perceived characteristics which they have in common. In several studies the similarity hypothesis has been supported by findings of interpersonal attraction related to similar attitudes, beliefs, etc. The data supporting the similarity hypothesis is less conclusive when personality characteristics are used as a basis for similarity. A second objective of the present research was to test the similarity hypothesis in roommate pairs who differ in initial interpersonal attraction.

It is implicitly assumed, by many college students and student personnel workers, that compatibility is related to adjustment and academic performance. The main objective of this research was to test this assumption--to measure the relationship between roommate compatibility and the adjustment of college students.

The research on roommate compatibility is described in some detail in the technical report of Appendix H. A summary of the procedure, conclusions, and implications is given below.

Subjects were 276 college freshmen (138 pairs of roommates) living in a large men's residence hall. For many of the analyses subjects were divided into two subsamples--70 students (35 pairs) who mutually chose each other as roommates on a housing form, prior to arrival on campus, and 206 students (103 pairs) who were randomly assigned as roommates. Scores were obtained on five compatibility variables--self-report of Social Compatibility, self-report of Study Compatibility, rating of roommate on Health-Engendering Personality (HEP), rating of roommate on Responsibility, and whether roommate was chosen as Confidant.

Measuring roommate compatibility. Two compatibility variables were based upon straight forward questions, in effect asking subjects "How compatible are you?" (in personal and social relations, and as study companions). Answers were on five-point scales ranging from "very compatible" to "very incompatible," rather than simply true-false or yes-no answers as are often used. It is interesting that these straight forward measures of compatibility were substantially correlated with the more indirect (rating and sociometric choice) measures of compatibility.

Among the five compatibility variables the highest intercorrelations were between measures obtained from the same instrument or procedure. When taking into account these methodologically inflated correlations, there appeared to emerge two semi-independent dimensions of compatibility--one dealing with personal-social relations, and the other a more task-oriented dimension involving responsibility in the roommate relationship and compatibility as study companions. This suggests the need, in future research, of taking these different dimensions of compatibility into account more explicitly. Considering the moderate-to-high intercorrelations among compatibility variables, overall, and the specific compatibility content of two of the variables, probably the main thing reflected by the various variables is a generalized feeling of compatibility with roommate.

In other research roommate choice has been used as an indicator of compatibility, while choices for friend and coworker have been used as measures of interpersonal attraction and group cohesiveness. It is assumed that students who choose each other as roommates are compatible. But, with first quarter freshmen especially, choice may be based upon such superficial factors as coming from the same hometown, not knowing anybody else at the big university, etc. It was an empirical question of how compatible mutually chosen roommates would be in the ongoing roommate relationship when measured after approximately 7-8 weeks of living together.

To summarize the results, the mutual choice index of initial interpersonal attraction was significantly related to subsequent compatibility in the ongoing roommate relationship, as reflected by scores on three of the psychometric compatibility variables. Although it accounts for only a small portion of the variance (of later psychometricly measured compatibility), we may consider the roommate choice variable as an index of compatibility.

The similarity hypothesis. The leading hypothesis for predicting interpersonal attraction or compatibility is based upon similarity of characteristics. This hypothesis was supported in the present research by finding that mutual choice pairs were more similar (than randomly assigned pairs) on a variety of personality and adjustment characteristics. From consistent findings across several instruments and sources of measurement (including peer ratings and grades as well as self reports) this seems to be "real similarity" and not just "assumed similarity." Positive (but lower) indexes of similarity between members of randomly assigned pairs suggest that living together contributes to similarity.

Compatibility and adjustment. There was a consistent relationship between roommate compatibility and *social-emotional adjustment* across five alternative measures of compatibility. Although the correlation coefficients did not account for a large portion of variance, confidence in this relationship is increased when it is considered that the relationships were replicated, and held when social-emotional adjustment was measured by several different instruments and sources of measurement. Although good social-emotional adjustment may contribute to roommate compatibility, the results and widely held expectations carry the implication that compatibility contributes to adjustment. Analyses from the present research indicate that this relationship is not large, although it seems fairly well confirmed for social-emotional adjustment. It remains for further research to clarify the causal relation, and to investigate the size of the relationship more closely.

The correlations between compatibility variables and a measure of *attitude toward the university* were consistently positive for both subsamples, although the relationship did not account for a large portion of the variance.

The safest assumption about the relationship between fall quarter compatibility and *academic adjustment* is that there is no relationship. However there was a tendency for a positive relationship in mutual choice pairs (in contrast to randomly assigned pairs), and with the peer rating and task-oriented compatibility variables, especially roommate rating on Responsibility.

From the standpoint of a college administration and faculty, what difference does roommate compatibility make? According to this study, the relationship between compatibility and grades is dubious. However, we might expect this relationship to increase after roommates have been living together over a longer period of time--this needs further investigation. (A discussion relevant to this point is included in Appendix G.) Also needing further investigation is the relationship between compatibility and attrition (dropping out of college), and the relationship between compatibility and academic adjustment for those students who are most vulnerable from the standpoint of unsatisfactory social-emotional adjustment.

The lack of a positive relationship between compatibility and academic achievement is similar to the situation found in studies of group cohesiveness. Some investigators examining the effects of group cohesiveness upon productivity find a positive relationship, while others have found no relationship or have found that the more cohesive the groups the lower the productivity. These contradictory findings have been reconciled by the generalization that group cohesiveness contributes to productivity when the goals of the group members are considered. Translating this into terms of roommate compatibility and academic achievement we would expect the following picture. If the main goal of roommates, as a pair, were study effectiveness, then we may find that study performance and thus academic achievement are higher for compatible pairs than for incompatible pairs. But other data from this research program indicates that students are oriented more toward social relations than studies. In this study we did find a positive relationship between roommate compatibility and social-emotional adjustment, which fits in with this explanation.

For compatibility to be related to academic achievement two other necessary conditions are postulated. (a) Both roommates must be oriented toward studies. (b) They must be working as a group (pair) toward the study goals--preferably studying together or helping each other on the same topics, but at least working cooperatively in the sense of consciously attempting to create a favorable study atmosphere for each other and avoid distracting each other from the study goal. Merely informing students of this may facilitate the development of these conditions. Other ways for increasing study-orientation are discussed in Appendices F, J, and M, and further over in the main body of the report.

An obvious implication from this research involves prediction and assignment of compatible roommates. Mixed results have been reported in the literature from homogenous assignment of subjects on the basis of similar majors and similar academic aptitude. This study carries suggestions that are consistent with predominant theory and some research findings that similarity of personality characteristics contributes to compatibility. More research and synthesis of existing findings are needed to clarify the characteristics which are most important for similarity and compatibility. Perhaps a more important contribution of the current research concerns procedures for measuring compatibility, adjustment, and personality from several sources and instruments, with convergent relations.

From content analyses of students' answers to open end questions about characteristics sought in a roommate and characteristics one would want to avoid in a roommate, as well as from empirical relationships found in the present research project, it appears that the characteristics of consideration, warmth, and trust measured by the HEP scale are among the characteristics that are important for most people. However there are wide individual differences in the things that annoy and satisfy people, and these idiosyncratic preferences must be taken into account if we are to predict in advance and assign students as roommates so as to maximize compatibility.

An interesting aspect of the compatibility data was the generally high degree of roommate compatibility reported by most students. For example, 78% report being quite compatible or unusually compatible. This suggests that the majority of students are quite adaptable in being able to work out a compatible roommate relationship with the person to whom they are assigned to live. On the other hand, there are still 11% of the students in this setting who report being only somewhat compatible and 11% who report being incompatible. For these students a change in roommate or roommate relationship is probably a matter of much importance.

Compatibility as reported here probably is somewhat overestimated, due to measurement considerations discussed in Appendix H. However, the restricted variance of the compatibility variable probably means that the empirical relationships of this research are attenuated, and that it would be useful to investigate the topic further in a situation where there is a more even distribution of compatibility-incompatibility.

Religiosity as Related to Compassion and Adjustment:

Although there is concern by many about the diminishing role played by religion in American society, and for college students in particular, most would agree that religion has been one of the major influences in our society. Yet the literature on religion contains relatively few empirical studies relating religiosity to psychological variables, such as social-emotional adjustment, even though religions are also major social institutions providing emotional support for their members. Although the major religions are devoted to moral teachings, there have been few systematic investigations relating compassion to religiosity. This is of major concern during a period of turmoil and change for college students, at a time of supposedly hightened social awareness in which compassion should be quite relevant.

The purpose of the study reported in the technical report of Appendix I was to investigate the relationship of religiosity with adjustment and compassion. Most studies of religiosity have used denominational affiliation or some form of self report about religious beliefs as the main measure of religiosity. In contrast, the measure of religiosity used for this study is a composite scale based upon self reports of (a) frequency of church attendance, (b) the extent to which the subject practices his religion, and (c) the extent to which he advocates his religion to others. These are measures which are relatively unrelated to specific religious doctrines, i.e., the religiosity variable was designed to determine subjects' religious participation apart from the nature of their particular beliefs.

One working hypothesis was that the extremely religious and the extremely unreligious (both extremes on the religiosity continuum) would be perceived as less compassionate by their peers, and that the most compassionate would be the moderately religious. Concerning social-emotional adjustment, it was hypothesized that the extremely religious and the extremely unreligious would be low in social adjustment and freedom from anxiety. However, on relative social adjustment (adjustment in college compared with adjustment back in high school) it was predicted that the extremely religious would be the most poorly adjusted, being unable to find normative groups to replace the ones that had supported their high religiosity back in their home community. A corrolary to this hypothesis was that those very low on religiosity would find higher relative social adjustment in college compared to high school, since the non-religious viewpoint is more compatible with the more liberal viewpoints at a large university than with the religiously influenced norms of their hometowns.

Subjects were freshman men. The analyses utilized three variables relevant to compassion as perceived by peers. Also analyzed, in relation to religiosity, were two self report measures of current social-emotional adjustment, and one measure of relative social adjustment--social success and acceptance felt at college compared with social acceptance and success back in the home community during high school.

To summarize the results, religious college students were more likely (than low religiosity students) to be perceived as compassionate by their peers. They felt less well adjusted socially, compared to the social adjustment they felt back in high school (but as well adjusted in terms of absolute level of social adjustment). It is only when making the grosser comparison between a broad religious group and a broad low religious group that the data reaches statistical significance. However, inspection of the means of the extremely religious and the extremely non-religious groups (of seven levels of religiosity) suggests that the hypotheses about these extreme groups still seem tenable. It appears, for example, that the extremely religious are comparable to moderately religious students in consideration for the feelings of their peers, but have less interpersonal warmth which makes it difficult for others to feel comfortable and at ease with them. This finding fits the stereotype of some religious evangelists and zealots. The data pattern indicates that the moderately religious were like the extremely religious college students in failing to find in the campus community a religious based source of psychological support comparable to what they had back in their home town. On the other hand, the predominant religious patterns of the home town may have served as a negative reference for the extremely non-religious, who felt relatively more accepted socially in the more liberal atmosphere of the college campus.

Although the results are not as clearcut as one might desire, this research is in an area rather void of empirical studies. It is hoped that this study will generate further research, which will be more definitive in its findings. Although the tentative nature of the conclusions and the operational definition of religiosity should be taken into account, the picture provided by these results seems to have the following implications.

It appears that the more religious college students have difficulty in making a good social adjustment on the large university campus, at least in comparison with the social adjustment to which they were accustomed back in their home communities during high school. This has implications for orientation and guidance of these students, particularly during their first quarter in college. It suggests the need for an early contact by the campus religious organizations, perhaps aided by contacts with home town churches through their denominational frameworks, and special attempts to provide social-psychological support early in the initial quarter. It would also be relevant for the orientation and guidance system of the university to acquaint students with the need for comparable or substitute reference groups in the campus community (to replace those left at home), and information or means for inclusion in these groups.

It appears that the more religious students do display more compassion to their peers (than the less religious students), but that the extremely religious have difficulty in converting this into productive interpersonal relations with others. Currently there is a trend for college students to be concerned about social problems, and on many campuses to participate in some form of volunteer work to help solve those problems. In some cases these volunteer efforts have been spearheaded by campus religious organizations; but it has not become the general rule. With proper organization and leadership the campus religious groups would seem to be especially appropriate sources to channel the compassion of their students into useful community service. Included in such a program should be some procedures to help the extremely religious increase the warmth and closeness of their interpersonal relations. Participation in useful community service, also, would be one way to help the religious college student in his social adjustment to the campus community.

The Springs of Happiness for College Students--Implications for Scholarship Motivation:

The academic achievement of students is usually of more direct concern to administrators and professors than is the "happiness" of the students. However, happiness is not totally unrelated to academic achievement when we consider that happiness is a major source of motivation, i.e., a person works at (or at least thinks about, or worries about) the experiences and environmental factors which contribute to his happiness. Thus, if a student is to attain maximum academic achievement it seems important that his happiness be related to his academic activity and achievement. If a student's academic experiences are unrelated to his happiness, then a major source of motivation for scholarship is missing for this student. Apart from its contribution to scholarship motivation, happiness is an important human goal in its own right, one that has been neglected by researchers.

For this study the question was asked, "To what extent is satisfaction and happiness for the college student dependent upon success and satisfaction in social relations versus success and satisfaction in the academic area?" The approach for this study was to obtain a measure of happiness and correlate this variable with measures of social adjustment and academic adjustment. The method is described in more detail in Appendix L, using a large sample of freshman men.

To summarize the results, Happiness depends far more upon perceived social adjustment than upon perceived academic adjustment. For the fall quarter Happiness was correlated .65 with Social Adjustment, versus .19 with Academic Adjustment. This difference is statistically significant beyond the .001 level. However the .19 correlation of Happiness with Academic Adjustment is significantly different from zero at the .01 level, in contrast with an essentially zero correlation between Happiness and GPA (actually -.06). Similar results were replicated for spring quarter data--Happiness correlated .53 with Social Adjustment, .22 with Academic Adjustment, and -.07 with GPA.

It does seem surprising that GPA is completely uncorrelated with happiness when we consider the great unhappiness of some students when they hear that they have made failing grades or feel they have done poorly on a test, and the relief or pride of other students when they realize they have done well. Based upon this data, data from related studies, and upon observations of and interviews with dormitory residents the following picture emerges. Grades are important to students and academic success does have an effect upon happiness. However for the majority of students studying is a necessary but boring, painful and often anxiety arousing task, which contributes to the motivation to forget. Social influences are more pervasive, always present. If we could measure Happiness immediately after results of tests are announced the relationship between happiness and grades should be higher. But most of the time freshmen are preoccupied more with social adjustment than with academic adjustment, and it is their feelings of satisfaction and success in the social area which makes the greatest contribution to their happiness.

From data reported in Appendices K and M, it appears that students do experience a great deal of stress from their studies and failure to achieve up to their expectations. Both from answers to open-end questions and objective items, it appears that studies cause more worry than do social relations.

In short, it appears that studies cause a great deal of concern and worry to college students. It is interesting, however, that the Lack of Worry variable used in this research project has only a moderate correlation with Happiness (.33 in the fall, .23 in the spring), and that Lack of Worry is correlated somewhat higher with Academic Adjustment than is Happiness (.29 versus .19 in the fall, .22 versus .16 in the spring). Although the difference is small, and both are close to zero, Lack of Worry is correlated higher than Happiness with GPA fall and spring.[5] This picture provides support for the view advanced (but not so successfully measured) by others, that positive motivational variables are relatively distinct from negative motivational variables. This raises intriguing questions about the nature of happiness and worry, how both are measured, and the relationship between these variables and other socially important variables.

The stress caused by studies is probably related to the anxiety and boredom that is generated when starting to study or thinking about studying. As will be shown below, it is all too common for students to relieve this anxiety by socializing or procrastinating in other ways, rather than tackling the source of anxiety (i.e., rather than completing the studies). As it ends up the majority of the students tend to seek happiness from their social relations, to relieve worry about their studies.

The original thesis of this research study was that the source of a student's happiness is a major factor in determining motivation for scholarship, i.e., a person devotes much of his time and thought to the areas which have the greatest effect upon his happiness, the areas in which he is most preoccupied. Following this premise, students from this population are lacking a major source of scholarship motivation, i.e., their studies need to be made more related to their happiness.

There are some students with rather poor social adjustment who have strong motivation for scholarship. However for students who have special concerns about their social adjustment and lack scholarship motivation, it may be necessary to help them achieve a moderate degree of social satisfaction before they can become genuinely interested in their studies.

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[5] Note that the subjects' responses actually referred to worry. The variable was scored so that low scores referred to frequent worry and high scores referred to infrequent worry, hence the "lack of" worry label.

For the majority of students, however, the main objective is to increase scholarship motivation directly.

Scholarship motivation has been recognized as an individual difference which is important for academic success, and it is likely to be a difficult, although worthwhile endeavor to increase scholarship motivation in individuals. Several ways in which this might be done are suggested by various aspects of this research project. For example: provide the influence of Responsible study companions; point out to students the relationship between Responsibility and success; point out to students their tendency to relieve boredom, worry, and anxiety over studies with substitute activities, and the need to avoid this tendency and get the studies done; increase the intrinsic interest of courses of study, and the personal relevance of studies for individual students; provide study atmospheres which are conducive to learning and scholarship motivation. To the extent that scholarship motivation can be developed by more students, this should increase the relationship between academic achievement and happiness, which in turn would reinforce scholarship motivation.

Variables intended to measure scholarship motivation are usually considered in terms of the level of the score, or the average for a group. The present study illustrates the relevance of measuring relationships among variables, as well as averages on relevant variables. More specifically, the relationship between Happiness and Academic Adjustment (relative to other areas of adjustment) may be taken as an index of scholarship motivation--which includes the orientation the student brings to the campus, and the intrinsic interest contributed by courses of study presented by the college. In basic research to validate this approach we would expect this relationship between happiness and academic adjustment to be greater for over-achievers than for under-achievers, for responsible students than for students low on responsibility. In institutional research this index may be used to compare various colleges and sub-groupings within colleges; and this index may be used to assess the effectiveness of programs intended to make courses more interesting and to make study atmospheres more effective.

Friendship as Circumscribed by One's Niche in the Dorm:

The purpose of this research study was to examine friendship choice of college students, and choice for other social roles, as a function of physical distance, psychological distance, and various physical and social boundaries which might affect psychological distance and thus opportunity to interact.

The data chosen for this study was obtained from women college students, mainly because the shape of their dormitory was especially suited for analyzing patterns of interaction as a function of distance. However, a partial analysis of similar data from a large men's residence hall indicated quite similar patterns of interaction. The floor of the dorm used for this study was divided into four sections, with capacity for 28, 24, 44, and 28 residents per section. The construction was fairly typical of high rise dorms built during the past 10-15 years, with double rooms opening onto a long hallway and centralized bathroom facilities. Sections were separated by service areas, with the distance between sections approximately the equivalent of three student rooms; there was only a nominal division between sections, a door which was usually left open except late at night. The main data consisted of choices for friends, the persons with whom subjects indicated they spent most of their time in informal activities. This was supplemented by sociometric choices for roles of confidant, entertaining conversationalist, and leader, and ratings of how well subjects knew other residents on their floor of the dorm.

Most of the technical report of Appendix N is devoted to showing the great extent to which most college students in a large university are limited in their friendships to the people living within a distance of a few rooms of their own room in the dorm. In a more theoretical sense, and to include a broader perspective, the data provides a convincing demonstration of the extent to which propinquity (psychological distance, social boundaries, opportunity to interact) influences choice of companions. For example, when students were asked to indicate the people with whom they spent the most time in informal activities from anywhere in the campus community, 91% of the responses were for own sex. Of these own sex choices, 95% were from own dorm, 77% from own floor of the dorm, 71% from own section, and 64% within a distance of two rooms from own room. Companionship was even more limited to the closer distances when data was analyzed separately for those with whom subjects spent one hour or more in informal activities on a typical day.

When we move out beyond the section boundary we find that friendship is still a function of distance--people in near sections being chosen more than far sections, people in other sections of own floor being chosen more than those on other floors (when number of people possible to choose in the various areas is taken into account), and people on near floors being chosen more than those on more distant floors.

Closer analyses were made of choices for companions within own section and on own floor. In addition to choices for friend, choices were analyzed for confidant, entertaining conversationalist, and leader, as a function of distance from own room. Choices for confidant, like those for friend, were a strong function of distance within section (i.e., people from nearby rooms were much more likely to be chosen), while choices for entertainer and leader were less a function of distance within section. However the section boundary placed a major limitation upon choices for all roles, e.g., at least 76% of choices for all roles were made within own section.

The effects of psychological distance and social boundaries are illustrated by much greater likelihood of: choosing roommate than other people; choosing students whose room opens directly across the hall relative to rooms equally close but on either side; the limitation imposed by the section boundary, which is out of proportion to physical distance and any physical barrier.

Choice for people at the closer distances is partially explained by the number of people known, e.g., more people are known at the nearer distances than the far distances. However number known fails to account for much of the variance. For example, in the spring the average subject knows 25.12 people in own section (almost everyone in the section) but knows more people in the other sections of the floor (32.91 people known per subject). Yet more than 90% of the people on their floor with whom they spend time in informal activities come from their own section.

It appears, then, that the section is a relatively self contained unit. The 30 or less residents in the section provide sufficient opportunities for friendship and other social needs. And the mere convenience of physical closeness and propinquity are pervasive influences in determining where and with whom students spend most of their time.

It is quite likely that the interaction patterns will vary somewhat for other settings, e.g., for dorms with different arrangements, for smaller colleges where everybody knows everybody, etc. But confidence in the general conclusions from this study is increased by (a) close replication of findings when cross validated by separate analyses for the four sections of the dorm, (b) close replication of findings when analyzed separately for freshmen and non-freshmen, and (c) a partial analysis of data from a men's residence hall with approximately the same conclusions as from this study.

On the one hand, limitation of close friends to relatively short distances from one's own room (for the average of subjects) suggests that college students tend to be quite adaptable, making friends with the people with whom they come into closest contact, even though they get to know quite a few others (at least in their own dorm). On the other hand, many students are quite limited in their social interaction to relatively short distances from their own room. This has three implications.

(1) Considering that more optimum social relationships might be achieved by considering more alternatives, some mechanism is needed for increasing the range of opportunities for close social interaction with others further away from one's own room. This may be achieved in part by providing information of this nature to the students themselves. Further, useful opportunities could be provided by relevant university staff working cooperatively with organized student groups. Increasing opportunities for interaction is academically relevant in terms of helping students find optimum study companions.

(2) Most close friends (and people chosen for confidant as well) come from within two rooms of one's own room, with a moderate number from further away in one's own section. The section boundary, although physically nominal, provides a rather effective psychological boundary for all kinds of social interaction. This suggests that the section, as a unit, might be strengthened to provide more of a home atmosphere (home away from home), and might serve as an organizational nucleus for increasing opportunity for meaningful social interaction, especially in regards to study companions.

(3) In spite of knowing many other residents in other sections of their floor, the extent to which most of the social interaction is limited to one's own section is impressive. It appears that students, usually, don't have the inclination to wander much further away for their social contacts. From interviews with students, content analyses of answers to open end questions, and data from other parts of this research project, the same appears to hold for studying. Most students prefer to study in their own room. When they have difficulty studying in their own room they are reluctant to go to a distant study lounge or library. Successful merchants have recognized a similar situation in regards to shoppers--just consider the price of real estate in a "favorable location," where shoppers already tend to congregate, compared to other real estate only a few blocks away. By analogy, the "favorable location" for students is in their own section. This suggests the need of having a small study lounge (soundproof, attractive, and with appropriate furnishings) in each section of the dorm, in addition to or instead of large, centralized study rooms.

An Attempt to Create a Positive Social Atmosphere for Adjustment and Learning--a Lesson in Social Interaction as Related to Studying:

The field experiment described in the technical report of Appendix J was an attempt to create a positive social atmosphere through special assignment of students to an experimental dorm section. That aspect of the field experiment is summarized below, and the reader is referred to Appendix J for details. More important than the experiment, however, was the insight provided into social needs, social interaction, and how these social factors are related to studies.

A field study investigating the effects of Health-Engendering People (HEPs) upon their college roommates is reported for a large sample of first quarter freshmen in a section above and in Appendix G. In brief, it appears that HEPs did engender mental health in their roommates, and did insulate them from becoming dropouts, but had no direct effect upon their academic adjustment.

The objective of the field experiment summarized here was to create a positive social atmosphere conducive to adjustment and learning, by assigning a large proportion of HEPs to an experimental section of a men's dorm. Adjustment and academic achievement of students in this positive social atmosphere were to be compared with the adjustment and achievement of students in a control section.

Several problems (described in Appendices J and E), however, limited the experiment in such a way that only a dramatic difference could emerge as statistically significant. These problems included smaller experimental groups than planned, sample limited by students unwilling to participate, uneven assignment of subjects to sections, regression to the mean, and attrition from subjects not completing all forms from which self report measures were derived.

With these problems differences between sections were not statistically significant for self report measures of adjustment. Although subjects in the experimental section showed more improvement than controls on peer ratings of adjustment, this could be accounted for by the composition of the raters in the health-engendering section. There was no difference in improvement on grades or other measures of academic adjustment.

In spite of the failure to find clearcut differences in improvement of adjustment, there is evidence that a "positive social atmosphere" was created by the presence of the HEPs in the Experimental Section. The most significant difference between the two sections was the pattern of social interaction. There was three times as much social interaction among residents of the health-engendering section than in the control section ($p < .001$). On the other hand, members of the health-engendering section spent only half as much time as the control section interacting with others outside of the section ($p < .001$).

It appears that the social atmosphere created by the HEPs was positive, at least in terms of residents satisfying their needs for social interaction within the section. Answers to open-end questions indicate that they found more satisfaction from their new section (than from the sections they lived in the quarter before the experiment started) and more satisfaction than found by control subjects in their new section. Most of the interaction was positive in terms of forming friendships, feeling accepted, open communication, and learning about other people. Subjects who had found inadequate social experiences in their old sections were included in this informal social interaction. Consideration for others was reflected in a relatively quiet study atmosphere compared with the noise and disturbances of other sections.

However, this was offset by too frequent socializing (bull sessions, card games, music, etc.) which interrupted study and tempted others to abandon their study to participate. In summary, subjects in the health-engendering section did seem to find a positive social atmosphere, and did most of their socializing within the section. In contrast, subjects in the control section tended to seek other sources for their socializing. As it balanced out, there was no difference in the amount of study time reported by subjects of the two sections.

Another difference worth noting, and one that corresponds to the field study of health-engendering roommates, is that the drop-out rate was lower for the health-engendering section--15% compared with 24% for the control section, and compared with a somewhat higher rate for the whole freshman student body.

To summarize, the presence of the HEPs did seem to engender a positive social atmosphere characterized by friendship, open communication, and acceptance, and resulting in significantly greater social interaction within the section (compared with controls). Although this did not result in clearcut improvements on measures of social-emotional adjustment (compared with controls), lack of control in the measurements and the experiment itself mitigated against finding such changes. It is also possible that the social satisfaction found within the section may have limited social contacts elsewhere, which would tend to balance off any social-emotional gains from the positive social atmosphere in the section. However, an indirect benefit of the positive social atmosphere was found in terms of a reduced rate of drop-outs.

Probably the most useful thing accomplished by this field experiment was to provide some insight into the effect of social interaction upon studying. This picture emerged most clearly from the close scrutiny of the experimental section. But it applies to all sections of the dorm to varying degrees.

Many times we find that a student who wishes to improve in his social adjustment and works at it does so at the expense of his academic achievement; and vice versa to an extent. Learning about other people and how to get along with them cooperatively and without anxiety is (or should be) an important goal of education in itself. But academic achievement, or the learning which it is supposed to represent, is the primary purpose of college. Why did the positive social atmosphere not contribute to academic achievement of the residents?

It appears that the resources to satisfy one set of needs (social-emotional) hampered or offset the satisfaction of other needs (academic achievement). It is quite possible that if the experiment could have been continued longer, students in the health-engendering section would have consolidated their social adjustment, felt less need to socialize, and focused more upon their studies. But for the duration of the experiment it appears that an important ingredient was missing--an appropriate study atmosphere. Although loud noises and disturbances were kept down, there was no special emphasis upon or example of studying.

With the foregoing in mind, the following picture emerges. When the time comes for studying, students find socializing with other students more satisfying than studying. Students who are able to resist the initial temptation to socialize rather than study are distracted by friendly visitors to their room, and are reluctant to reject the visitors. As test time approaches, students start developing feelings of anxiety. There are two alternatives for relieving such anxiety. The most direct alternative is to make task responses, in this case do the studying that will prepare oneself for the test. The other alternative is to avoid (or avoid thinking about) the anxiety producing situation. Either procedure will relieve the anxiety. It is relatively easy to find satisfying social interaction to relieve the anxiety, so the other alternative (study) is less potent, except the night before a test when it is really too late.

The same situation applies to students in other sections as well. Motivation to study is borderline to begin with. Studying requires effort and/or becomes boring. Thinking about studies evokes dread or anxiety. Yielding to interruptions and temptations to socialize is reinforced by relieving the boredom and anxiety. However this puts the student "behind the eight ball" later, when he realizes that he is not adequately prepared in his studies. This accounts for the frequent worry about studies expressed by students. But then it is too late, or the worry itself all too frequently gets relieved by alternative activities rather than tackling the studies.

This is the situation that applies to the majority of the students. However there are some who do not have satisfactory social relations or other outlets--some of these are able to compensate by putting special efforts on their studies, while the social-emotional inadequacy of others so debilitates them that their studies suffer too.

Although assignment of Health-Engendering People to a dorm section may create a positive social atmosphere, other ingredients are needed to make this an effective study atmosphere. Simply making students aware of the need for study orientation and the need to avoid procrastination and social distractions is one way. Physical facilities more conducive for study is another needed ingredient. Leadership in developing social norms that balance socializing and study is still another needed ingredient. (These are discussed in more detail in Appendix M.) Still another needed ingredient is more support for and influence from the more responsible student, who can serve as a model of effective study habits for others to follow and can provide some leadership in establishing an effective study atmosphere. (This is discussed further in Appendices F and M.)

Social Interaction, Social Adjustment, Homesickness, Underachievement, Student Responsibility, and Other Aspects of Adjustment to College:

The technical report of Appendix K is a compilation of several different studies, corresponding to the paragraph headings in this section and summarized below. Further details about results and implications, as well as procedures, may be found by referring to Appendix K.

Social adjustment and academic adjustment. The gist of this study is that there is little empirical relationship between social adjustment and academic adjustment, and that the correlation between social adjustment and GPA hovers around .00, i.e., for all subjects combined these are independent realms of functioning. However data summarizing large groups may leave much information uncovered. There are cases in which a person with poor social adjustment lets anxiety or depression from this source so debilitate him that his studies suffer. However this is balanced (in the zero correlation coefficient) by the student who compensates for lack of social satisfaction with diligent study, which is reflected in high grades. The majority of students make a satisfactory social adjustment. But for the former student (described just above) some help with social adjustment is necessary for academic survival. The latter type of student, although achieving academically, still needs some means of facilitating his social development.

Initial and later adjustment of freshmen. In terms of current level of social adjustment first quarter freshmen (as a group) report satisfactory adjustment. However, data is shown to reveal that they feel less well accepted and less successful in their social relations than they did back in high school. This partially explains the strong need for socializing, which causes studies to suffer by default. Although the majority of students make at least a moderately successful social adjustment, there are a sizeable number for whom social adjustment is a major problem. Not all of these individuals find their way to any counseling center that may be available, and even if they do it is mainly satisfactory peer relations they need. For a college that cares about the social development and happiness of individual students, programs need to be developed to meet the needs of these students. Arranging for informal social relations with HEPs would be one way, as referred to above and in Appendix G.

Stress from studies. An open-end questionnaire was administered to a sample of freshmen asking about things that concerned them most during their first quarter of college. There were 26% who listed one or more social problems as being of major concern, and 74% who indicated a study problem as a major concern. Similar results were found from answers to an open-end question in the spring quarter. Some form of stress over studies was the most prevalent problem for women and men students. However for women this was expressed mainly in terms of personal limitations in studying (e.g., difficulty concentrating, inadequate study habits), while men expressed it mainly in terms of dissatisfaction with grades. These findings also agree with means and frequency distributions on objective items pertaining to academic adjustment and social adjustment. For example 61% of the students responded that they worried about their studies "quite often" or "almost all the time." Stress over studies, then, is more prevalent among college students than generally realized. As pointed out in sections above, some means are needed to channel this worry into task responses that will achieve study goals and reduce this source of stress, and have studies tied more to the positive motivation of happiness.

Positive and negative effects of social interaction upon the social and emotional development of peers. For the new college student, especially, social life centers around the dorm and small informal groups that arise there. The opinion of many students is captured in the following quote from a student's paper. "All things considered, I think dormitory life is very beneficial; it is one of the most significant factors in getting an education." It can also have negative effects. For this study students' answers to open-end questions asking about positive and negative effects of peer influence were compiled. Although these effects may be summarized here, one must read the students' own answers (in Appendix K) to get some feel for this. Some of them turn out to be quite perceptive and revealing, especially about the nature of informal social groups described at the end of Appendix K. Forms of positive influence include emotional support, friendship, social activities, opportunity to learn about different people and viewpoints, a positive example (maturity, and ways to interact effectively) for others to imitate. As one student put it, also "some students have a disastrous effect on others." Although the negative forms of influence upon social-emotional adjustment were not considered to the same extent (as the positive) for this report, some of the things mentioned include excesses that others find repulsive, inconsiderate behavior, dampening effects of glum, social exclusion, insincerity, etc. Perhaps the most important information to come from this is about some forms of social behavior that may seem positive, but which have negative effects in the long run--becoming too dependent on others, distraction from studies, relatively immature socializing instead of time that could be spent in a more mature form of social interaction, and the pressure to conform.

In summary, the frequent social interaction in the dorms can and does have a positive influence upon various aspects of social development. Yet for the typical college student there is too much reliance on these informal groups, not enough emphasis upon individuality and academic activity. This information provided to students could help balance their activity. Physical facilities and leadership are needed to provide opportunities for more mature forms of social activity and relief from the constant pressure to socialize, while still providing sufficient opportunities for the informal social groups already occurring so frequently.

Homesickness as relative social deprivation. It was hypothesized that homesickness is related to relative social deprivation, i.e., social adjustment at college relative to the level of social adjustment achieved back home in high school, in contrast to absolute level of current social adjustment at college. The fall quarter correlations were consistently higher for the relative social adjustment variables than their absolute social adjustment counterparts, although the differences were not statistically significant. Also, the Homesick variable was correlated higher with Relative Academic Adjustment than with current level of Academic Adjustment. Homesick was correlated .34 with the Relative Social Adjustment composite, which is significantly different from zero at the .001 level.[6] The only other correlates that exceeded this were its correlation of .37 with Happiness, and its correlation of .53 with Lack of Chronic Worry (which was spuriously inflated).

In summary, the hypothesis relating homesickness with relative social deprivation was partially supported. Although the critical differences testing the predictions were not large, one should note that the variance of the Homesick variable was quite constricted, which lowers the possibility of a strong relationship with any variable and thus obscuring the magnitude of the predicted difference. The hypothesis still seems tenable enough to make it worthwhile testing it in a setting where homesickness is more prevalent.

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[6] Actually -.34 scores on the Homesick variable were reflected so that a low score refers to homesickness and a high score refers to lack of homesickness. This is what accounts for the sign of the correlation coefficient reported.

Satisfaction with college. Satisfaction with college was measured by two variables. Attitude toward the University was measured by the mean of subjects' scores on 13 items pertaining to satisfaction with various aspects of the campus milieu considered central to the university as an institution, e.g., courses, academic requirements, rules and regulations, administration, dorm, counseling and advising, meals, etc. The second variable was composed of responses, on a five-point scale, to the question, "On the whole are you getting out of college what you came here for?" This variable was labeled, Satisfaction with College.

The correlations of these variables with various other variables are shown in Appendix K. To summarize, there was a rather uniform low-to-moderate but statistically significant correlation of both of these variables with various measures of academic adjustment and social-emotional adjustment. However there are some relationships that were higher than the others.

Enjoyment of Studies is a component of academic adjustment which contributes to students' Satisfaction with College and Attitude toward the University. Happiness is substantially related to Satisfaction with College and Attitude toward the University. Social Adjustment tends to contribute more to Satisfaction with College than do other aspects of social-emotional adjustment. Satisfaction with College has a relatively low but statistically significant correlation with GPA. From data of a smaller sample, Attitude toward the University was found to be significantly related to whether students would choose to live in university housing the next year. As shown in the section below, Attitude toward the University is negatively related to dropping out of college.

Factors which contribute to dropping out of college. Dropouts were defined for this study as students who failed to return to the university the following fall (the start of the next academic year after the collection of the research data), or during the year of the research study. Dropouts were subdivided into those "not-in-academic-trouble," and students "in-academic-trouble"--those who had been placed on "Probation" or "Academically Dismissed." Mean scores of these various categories of dropouts were compared with those of a control group.

As expected, dropouts in-academic-trouble had significantly lower GPA. Since their attained GPA was much lower than their predicted GPA, they would be classified as "underachievers." However they also had significantly lower predicted GPA (which is based on college board scores and high school average), which means they started out with an initial handicap. As would be expected with low grades, they had significantly lower scores on self reports of Satisfaction with Achievement.

Those on Probation had only slightly lower than average grades fall quarter, became somewhat worse winter quarter, and took a big decline spring quarter; while those Academically Dismissed had poor grades from the start. Although all dropouts in-academic-trouble had lower than average scores on ability to Concentrate on Studies, this was much lower for those who were Academically Dismissed. Also, the Academically Dismissed (but not those on Probation) had significantly lower scores on Social Adjustment, Happiness, and Roommate Compatibility. There was a tendency for students on Probation to show less Enjoyment of Studies than the control group and those Academically Dismissed. For all dropouts combined, scores on Responsibility were significantly lower than those of the control group.

For this pattern of results we have the following interpretation and implications. Students with the initial handicap of lower than average academic aptitude (as determined by Predicted GPA, based upon College Board Scores and High School Average) are quite likely to end up in academic trouble (Probation or Academic Dismissal) and as underachievers (as determined by attained GPA being much lower than predicted GPA). However not all students with lower than average academic aptitude end up as dropouts in academic trouble and as underachievers. This outcome is increased for students who are lacking in Responsibility.

Students with lower than average academic aptitude who do poorly in their studies from the start (in contrast to those whose poor academic performance shows up only gradually), are characterized by lower than average ability to concentrate and avoid distractions, lower than average social adjustment; unhappiness and incompatibility with roommate are also part of this syndrome. It appears, then, that the students who fall by the wayside from the beginning are also more emotionally vulnerable and less effective in general.

It would seem that early identification and help would be especially appropriate for students displaying this pattern of symptoms, and that help would need to constitute more than helping them increase their academic motivation. On the other hand, increasing academic motivation (especially in the form of increasing the interest and personal relevance of their studies) seems to be the most relevant approach for students with lower than average academic aptitude who are not so emotionally vulnerable.

The dropouts not-in-academic-trouble had average grades. However those who dropped out early (before the end of the academic year) perceived lower than average Satisfaction with Academic Achievement, and perceived their own academic adjustment in general to be low relative to their academic adjustment back in high school; they also tended to have more than their share of chronic worry. Both early and later dropouts not-in-academic trouble were characterized by significantly lower Enjoyment of Studies, Attitude toward the University, Happiness, and Social Adjustment, and by significantly greater Anxiety and Tension Symptoms.

For dropouts not-in-academic-trouble we have the following interpretation and implications. Students with average academic aptitude, who later become dropouts while maintaining satisfactory grades, provide a somewhat different situation (from those in-academic-trouble). Their negative attitude toward the university and their lack of enjoyment of their studies may reflect more than their share of trouble in sampling academic courses and other aspects of the campus milieu. These students are also characterized by lower than average social adjustment and happiness, and more than their share of anxiety and tension symptoms. These individuals may also be considered emotionally vulnerable, as well as lacking in social skills. Approximately half of the people with this pattern drop out early in the academic year. It also seems important to make early identification and provide appropriate help for students with average academic aptitude who have a pattern of inadequate social skills, dissatisfying experiences in their studies and with the university, and more than their share of unhappiness and tension. Certainly appropriate help is needed (by individuals with these problems) in making a satisfactory life adjustment and developing into effective citizens.

Student opinions of factors which have favorable and unfavorable effects. Open-end questionnaires were administered to students asking what aspects of the university satisfy them the most and have favorable effects upon students, and what aspects of the university dissatisfy or bother them especially and have unfavorable effects upon students. Content analyses of answers were made by a broadly inclusive and detailed set of categories with quotations to operationally define the categories. The number of favorable things mentioned was almost identical to the number of positive things, indicating that students were equally likely to praise as to criticize.

The Social area was reported as satisfying or having favorable effects upon the most students, with subcategories of Friendships and Social Activities providing the most satisfaction. It is interesting that an almost equal number of students mentioned Academic-Intellectual (mainly Professors, and Courses) as having favorable effects as having unfavorable effects. This suggests that academic experiences vary a good bit from student to student, and for a given student from course to course. The other category mentioned as bothering or having unfavorable effects for a large proportion of students was The Institution (which includes Rules and Regulations, Administration, and other subcategories). Further details can be obtained from Appendix K.

Another open-end question was administered asking for students' suggestions about the dormitory. The majority of the students responded with comments and suggestions about physical aspects of the dorm. The distribution of suggestions about various aspects of the dorm may be grasped most easily by scanning the table and quotes in Appendix K. The point that seems most worthy of comment is the large proportion of students who make suggestions about aspects of dorm structure and dorm life that would improve the study atmosphere.

The data in this section of Appendix K is descriptive, rather than showing relationships, and is limited more than other data in this report to a particular setting or kind of setting. The objectives in presenting it are (1) to provide a rough idea of the things that are salient to college students, (2) to summarize the dimensions of their opinions expressed in response to broad open-end questions about the campus milieu, and dormitory in particular, and (3) to show how this approach may be used as a systematic way of obtaining information from observers who have a strategic viewpoint of the campus milieu. A "feel" for their ideas may be obtained from the subcategories of the tables and the quotes in Appendices K, D, and M. This has the practical implication that organized collection of student reactions and suggestions (in their own words) about various aspects of a college or university, such as in the manual developed for these content analyses and referred to in Appendix K, could be developed and used to advantage by educators at any college or university.

Student participation in self government. It is generally assumed that most students are disinterested in participating in student government. However, it should be considered that there is little opportunity for most students to participate in a way that is meaningful and useful, nor do they have requisite skill or training. Following this rationale a questionnaire about student participation was administered to a large sample of freshman men.

In contrast to the usual conclusions about student apathy, 90% indicated they would be willing to participate in some form of student government if there were something they could do that would be a really useful contribution. Even if this is an overestimate of those who would follow through when given the opportunity, it appears that a substantial number of students would participate in some form of self government or service if their efforts could be channeled effectively in appropriate ways. There were 81% who even would be interested in some form of training for this participation.

As for the relatively small number of freshmen elected to existing student government offices, the prevailing opinion is that they (as a group) are less concerned with service than with prestige--a motive which all too often influences student politicians to seek office.

Although more students would like to participate in student government than in some form of social service project in the community, there are still a substantial number (68%) who indicate an interest in participating in community service. It would seem that the spare time and talent of college students interested in social service would be a valuable and usable asset for any community where college students are available.

Concerning student participation in responsible self-government, descriptions of student interaction in informal groups (in Appendices K and M) indicate that students do have a strong need for some form of social interaction, but that much time is spent in activities which have little benefit. Certainly participation in informal groups a moderate amount of time is a useful form of social learning and entertainment. However it appears that there is an excess of social activity available which students would be willing and interested in channeling into more responsible service if they had the opportunity and know-how. It should be a worthwhile challenge for a creative administration to provide the opportunity, leadership, and training to enable students to contribute this service to themselves and others.

Academic Adjustment, Time Studied, and Grades:

The material in this section is summarized from the first three (introductory) sections of Appendix M. It concerns distribution of study time, correlates of Hours Studied and GPA, and three self report components of academic adjustment--Satisfaction with Academic Achievement, Ability to Concentrate on Studies, and Enjoyment of Studies. Further details may be seen in Appendix M.

As would be expected, self report of Satisfaction with Academic Achievement is substantially correlated with quarterly GPA (.52 fall, .61 spring). Of greater interest is the fact that the Concentrate on Studies and Enjoy Studies components of academic adjustment have moderate and statistically significant correlations with quarterly and yearly GPA (ranging from .22 to .35 with Yearly GPA, for example). Enjoy Studies, in particular, is correlated with Hours Studied, from .44 to .50, suggesting that this variable has a major indirect effect upon grades as mediated by its influence upon time spent studying. It is also interesting that the Attitude Toward the University variable is correlated with Hours Studied. As expected, Hours Studied is substantially correlated with GPA, from .44 to .59 for various measures obtained spring quarter.

Substantial correlations of Enjoy Studies with Happiness, and of Concentrate on Studies with Lack of Worry, Anxiety, and Physiological Symptoms, further validate these variables and contribute knowledge about factors affecting learning.

Frequency distributions of time studied reported by students are shown in Appendix K. To summarize, only 7% report studying less than two hours per day, 17% study less than three hours per day, and 25% study less than four hours per day. There are 30% who study at least four hours but less than six hours per day, and 21% who report studying six or more hours per day. No doubt, not all of the time they study is productive or efficient study. Considering these self reports as roughly accurate, and considering the strong empirical relationship between Hours Studied and GPA, it appears that a substantial number of students could help their academic achievement appreciably if they could just bring themselves to study one-two more hours per day.

Considering a breakdown of time studied by location, approximately 71% of their study was done in their own room in the dorm, 12% in the libraries, and 17% in all other locations combined. It should be noted, however, that this is in terms of group averages. The study location varies considerably from student to student, with most students doing more than 80% of their studying in their own room, and a few students doing the main portion of their studying elsewhere.

The previously described Responsibility variable rounds out the picture of study, academic motivation, and grades. Responsibility is correlated .36 and .40 with two measures of Hours Studied, and has statistically significant but lower correlations with all three components of academic adjustment. However its highest correlations were with GPA. Responsibility seems to be a key variable. The pattern of correlations provide the following picture. Responsible persons (responsible motivation and behavior) spend adequate time on their studies, more than the average student, but not excessive amounts. (If they spent excessive amounts of time on their studies the correlation between Responsibility and Study Time would be higher.) The fact that Responsibility is correlated higher with grades than with study time suggests that responsible students use their time effectively, and that it is effective use of study time that characterizes the responsible student and contributes to grades. But responsibility is not limited to academic performance. For example, it is also related to perception by peers of leadership and co-worker qualities.[7]

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[7] It should be noted that sociometric choices are made from everybody, with everybody a potential recipient, without campaigning. In many ways this is different from political campaigning, where motivation for prominence and campaign strategies may contribute more than Responsibility to getting elected.

Furthermore, the person who does perform well academically is more likely to be chosen by his peers for task roles of co-worker and leader, as illustrated by substantial correlations of the Task Role variable with GPA and Hours Studied.

Several measures of social interaction were correlated with GPA, Hours Studied, and Responsibility. There was a consistently low, negative correlation between amount of social interaction and these variables. With interaction variables reflecting especially time consuming socializing the negative correlations with Hours Studied and Responsibility reached statistical significance. This finding, along with descriptions of social interaction in Appendices K and M, suggests that high amounts (especially time-consuming) of social interaction is incompatible with studying, and thus hinders academic achievement. From those descriptions of social interaction (in Appendices K and M) it appears that college students, especially freshmen living in dorms, have a strong need for social interaction. Frequently this interferes with the studying of others, as well as reducing the individuals' own opportunity to study. It would be useful to channel this strong need for socializing along a more constructive path. Although it might require a creative approach and extensive coordination at first, students could be organized into small groups and pairs with common study interests and needs, and in such a way that responsible and academically motivated students exert influence upon the others. This would not take the place of individual study, but would help to meet the students' need for social interaction while increasing the amount and effectiveness of study time, and increase enjoyment of and interest in studies.

Any variable that influences study time would tend to mediate academic achievement. Enjoy Studies is one such variable. Although no direct measure of this was included, it would seem that enjoyment of studies would also contribute to the effective use of study time in addition to the amount of time studied. As pointed out in sections above, Attitude Toward University and Responsibility are other variables which are substantially correlated with Hours Studied, and which thus should mediate academic achievement through study. The individual's own motivation must contribute to (be part of) his enjoyment of his studies. These findings carry implications of several ways to improve academic motivation and performance: increase the interest of courses and assignments; counsel with individuals to help them find personal relevance and interest in their studies (bolster the personal motivation element); arrange for discussions and joint study sessions with other students so that they can influence each others interest in studies; provide special support for Responsible and enthusiastic students in joint study sessions as a means of increasing responsibility and interest in studies of other students; investigate aspects of the campus milieu contributing to dissatisfaction of students, and improve these sources as a way of improving students' attitude toward the university (as well as needed improvement in the effectiveness of these resources).

Students' Search for a Favorable Study Atmosphere--The Problem:

The section of Appendix M with this title reviews several sets of data pertaining to students' search for a favorable study atmosphere, or at least to the unfavorable atmosphere and other study problems they find. This is summarized below, and may be seen in more detail in Appendix M.

As noted above, when asked about things they were disappointed or dissatisfied with which they would like to improve, some form of stress from studies was mentioned far more than any other category. When asked for suggestions about the dorm, a large portion of answers pertained to aspects of dorm life and physical structure that would improve study conditions (e.g., student rooms more conducive to study, adequate study lounges, less noise and distractions). When asked about the main problems confronting them during their first quarter, freshmen answered mainly in terms of study problems--distraction by noise in the dorm and the need for quiet, no place to study, interruptions when studying, socializing and giving in to other temptations when they should be studying, study habits, difficulty concentrating, lack of interest in studies, just not studying or procrastinating. These answers to open-end questions are the things that are most salient to students.

The prevalence of students' concern over studies received further support in answers to objective items. Data summarized in Appendix M indicates that large percentages of students have difficulty concentrating on their studies and avoiding distractions, worry about their studies, and find noise and distractions in their section of the dorm, e.g., 21% reported noise and distractions "almost all the time" and 35% "quite often."

In an attempt to supplement some of the information about informal social interaction referred to above and included in Appendix K, an open-end question asked subjects to describe ways by which students have negative effects upon the studies of other students. Answers referred mainly to five kinds of influence--noise and distractions which make studying difficult, interrupt others who are trying to study, tempt others to participate in other activities when they should be studying, deliberately lure others away from their studies for participation in other activities, serve as a model or example of procrastination and bad study habits. Further insight into these forms of social influence may be seen in students' own words in Appendices M and K.

In another open-end question students were asked to describe any problems, distractions, or hindrances which they encountered in trying to get their studies done. Only 8% answered "no problem" or the equivalent, with the other 92% of the students reporting at least one form of study problem or hindrance to their study. A breakdown of the various hindrances may be seen in Appendix M. In brief, the most prevalent hindrances include noise and disturbances, interruptions, temptations to socialize.

Perhaps most noteworthy is that more than 80% of the study problems mentioned were some form of distraction caused by other students, with relatively few mentioning the main problem as an internal source (such as personal motivation, difficulty concentrating, study habits, etc.). If most of the students think of others as causing the main hindrances to study, they must be among those hindering the studies of others! Here we have a vicious circle--most of the students would like some relief from the noise and social distractions which hinder their study (and thus indirectly contribute to their stress over studies), yet they cause their own share of it, without fully realizing the extent to which others share their concern for a more favorable study atmosphere.

In summary, students perceive a great deal of stress from studies, but lack satisfactory solutions to their study problems. Lack of interest, difficulty concentrating, and other personal factors make them vulnerable to distractions. They have a strong need to socialize, which results in interruptions from studying, as well as noise and distractions from outside their own rooms. The structure and furnishings of their rooms and the dorm as a whole are not conducive to studying, and adequate study lounges for avoiding the noise, interruptions, and other distractions are not available.

Some Effects of an Unfavorable Study Atmosphere:

Some effects of an unfavorable study atmosphere have been implied above, and in Appendix K. We find, for example, that ability to Concentrate on Studies is consistently related to GPA, and that noise and distractions from other students and other forms of social interaction reduce ability to concentrate. Dropouts, who are in academic trouble due to low grades, are characterized by difficulty concentrating on studies. Amount of time studied has a strong relationship with GPA. There is some indication that the sheer amount of social interaction is related to grades, with a more clearcut finding (stronger relationship) that too much time socializing interferes with study, which in turn effects grades.

As summarized above, noise and distractions from other students were perceived by most students to be a major hindrance to their studies. This points out the need for future research to obtain objective measures of noise and distraction in various dorm sections and study areas and to relate this to time studied, to effectiveness of study, and to academic achievement. Although an extensive study of this nature has not been done in this research project, a more limited study in this domain was done. This is described in Appendix M, and summarized below.

For this study grades of students in crowded rooms were compared with a large control group of students not in crowded rooms. Freshmen in "crowded rooms" were those starting the fall quarter in triple rooms, or in several pairs of rooms in which one room of the pair had no entrance to the hall and the students had to enter their own room through the room of the students next door. More than their share of noise and distractions were reported by students in these crowded rooms, as illustrated by the following quote from a student's answer to an open-end question about dorm life during the fall quarter. "I think that the double rooms on the end of the halls should be done away with. It is almost impossible to study with rooms like this. I think there should be study rooms within the dorm."

To summarize the results, students in crowded rooms had significantly lower GPA, and significantly lower scores on Relative Academic Adjustment (academic adjustment during the fall quarter of college relative to their academic adjustment back in high school). In addition to having significantly lower academic achievement than control subjects, students in crowded rooms had lower (than average) scores on seven of eight measures of social-emotional adjustment and attitude toward the university. The differences on three of these variables were statistically significant--they had significantly lower scores on Relative Social Adjustment, Happiness, and Roommate Compatibility.

Search for a Favorable Study Atmosphere--Solutions:

Recommendations in this section are based on data from students, some introduced in this section, but most integrated here from previous sections. It should be noted that the data is not just preferences and opinions of students, although these are important, and confidence in this form of data is increased by convergence of conclusions from different samples, answers to open-end questions, and data from objective items. The data is not just descriptive but involves relationships. Relationships are not just between various self report variables, but include relationships involving peer rating variables which have been shown to have higher validity than most variables used in personality and institutional research. These relationships also involve "hard data," including GPA, different categories of dwellings (e.g., crowded rooms versus other rooms, physical distance and physical-social boundaries), and carefully checked dropout status. Recommendations are in the form of suggestions and implications from the data, although they go beyond the data as almost all recommendations do. The important point is this--the suggestions given here are tied closely to the data, and are given in the context of summaries of that data.

In a section above it was reported that students do most of their studying in their own room in the dorm, even though noises and distractions there are quite prevalent. This is supplemented by other data reported in Appendix M which indicates that most students strongly prefer to do most of their studying in their own room. Further most of them believe that a dorm room should be more of a place for studying than socializing, although a moderate proportion of time in the room should be devoted to socializing. In spite of the excess socializing described in sections above, only four percent of the subjects believe the dorm room should be more for socializing than studying.

Other data indicated that 48% of the students would prefer to go to bed by 11:30 at night, and 89% would prefer to go to bed by 12:00. Yet, according to observations in the dorm and interviews with students, it is usually too noisy for the light sleeper to observe his preferred bedtime until well after midnight. Other research, as well as personal observations, has shown the detrimental effects of inadequate sleep upon intellectual performance. This is a special problem for any student with difficulty sleeping and for all those with early morning classes (which the administration must schedule to fully utilize classroom facilities).

It appears that one major avenue to improve the study atmosphere is with the students themselves, and the informal social norms they evolve. Although most students attribute noise and distraction (which hinders their study) to other students, many of them are also caught up in the social whirl that produces these distractions. Although most prefer their dorm room to be more of a place for studying than for socializing, they interrupt each other while studying, tempt each other to socialize when they should be studying, and distract each other with noise from outside the room. Although most prefer to go to sleep before midnight, and some much earlier than this, they maintain or allow these distractions to continue past the preferred and needed bedtime. The majority of the students seem unaware that their peers share their interest in obtaining a more favorable study atmosphere for study. In a sense they need protection from their own social norms, and support for their personal desires of a favorable study atmosphere.

One way to help, then, is simply to provide them with this information. Beyond this some guidance may be useful in helping them set realistic norms--which allow sufficient socialization, but provide a better balance in the direction of reducing distractions and maintaining a favorable study atmosphere. Since most students share this interest, there should be sufficient motivation for them to work out the details themselves through some form of self-government in each section and for the dorm as a whole _if_ given appropriate support and guidance from an interested administration. In fact, with the tendency of college students to resist enforced authority this would probably be accomplished best by collaboration between administration and students, with a large share of responsibility carried by the students. This would be an avenue for fulfilling social needs while obtaining the study atmosphere desired by most.

This recommendation is based upon the desires of most students. However there seem to be a small minority of "hell raisers" and self centered students who are not very concerned with their own studies nor the rights of others. In previous research in a men's dorm (Alsobrook, 1962) a situation was described in which a small gang of irresponsible students (including two who had been elected to campus office) engaged in a series of minor vandalisms, and generally distracted other students on the floor from their studies and from more responsible social interaction. Although private ratings of these individuals by the other students showed a marked decline in the esteem and responsibility with which they were perceived by their peers, most of those peers put up with or condoned their antics, and on occasion joined them for want of more interesting things to do. Several more responsible individuals who attempted to cool the situation without tattling to administrators were given little support by the majority of their peers.

In the present research study many students privately criticized the minority of hell raisers, as indicated in their answers to open-end questions and interviews, yet took no action to eliminate this major form of disruption. It appears that students do not realize the extent to which most of their peers fail to condone such irresponsible behavior privately, and are quite reluctant to take action individually. Again, simply informing students of the extent to which these norms of desired responsibility are shared, and fostering discussion of this among themselves should help create a stronger norm to resist these disturbing few. However some guidance is needed in formalizing this more responsible set of norms and finding effective but fair ways of controlling or eliminating the disturbances of the most irresponsible and inconsiderate few.

Another factor which has made this situation (control of the troublemaker) hard to deal with is the paternalistic policy of some deans and housing administrators (perhaps in accordance with presumed mandates from parents and others), which dictates that students must live in the college residence halls. That policy means that the most effective method for eliminating irresponsible behavior is unavailable--ejecting disturbing students from the dorm. If college students are to learn responsibility for their own actions, ejection of a person by the recipients of his disruptive behavior can be a dramatic and effective lesson to him, as well as a service to the majority. If such a policy were included in the norms of conduct, the threat from its existence should be effective in most cases--as long as the policy were enforced when necessary to show that it is real.

As with other approaches to establishing student norms, this would probably work best if initiated in collaboration with students rather than as an edict from external authority. However, students need to be informed of the need for such a policy and that it is possible, and shown that responsible efforts to achieve a favorable study-living atmosphere will be supported by the administration. Most students express an interest in participating in student government in some way if it makes a useful contribution and if some training or guidance is provided. They are skeptical of the service orientation of their elected leaders (at least in freshman, dorm government). Chances for success would be increased by obtaining widespread student participation, and with more support for truly Responsible students.

With social norms conducive to a favorable study atmosphere, it would be easier for other positive resources from students to come into operation. A table in Appendix M provides some quotes from students which suggest various ways of promoting a favorable study atmosphere, as well as other ways in which students may have favorable effects upon the studies of other students (which would be easier to obtain in a favorable study atmosphere than in existing conditions). Their answers referred mainly to five types of positive influence--exchange and discuss ideas, set a standard and challenge through competition, influence others to study by various warnings and threats, encourage others, help them with their studies, serve as a model or example of good study habits.

Development of responsible student norms, especially if endorsed and administered by students themselves, should contribute to more effective study atmosphere. However this would be hard to achieve without appropriate physical facilities, e.g., hard to achieve in the dorms used for this program of research (described on page 7, and in Appendices N, M, and K)--without some renovations and/or changes of building use. Other data introduced in Appendix M is relevant to this topic.

As noted above, many of students' observations and suggestions in answers to open-end questions pointed out the need for study lounges and student rooms more conducive to study. In answer to objective items, approximately 85% of the students indicated they would use a conveniently located study lounge with a quiet study atmosphere if it were available, and thought that an effective study lounge would help them concentrate on their studies and improve their grades. Although a larger percentage of students (99%) indicated they would use a convenient recreation lounge if available, they would use it less time than a study lounge. Only 22% indicated they would use a recreation lounge six or more hours per week, compared with 57% who believed they would use an effective study lounge six or more hours per week.

It is also enlightening to see that 51% believe that a recreation lounge would help reduce noise and discipline problems (and thus improve the study atmosphere). The frequent socialization in the dorm suggests that well planned recreation lounges would help meet the social and recreation needs of students, and thus help keep their manifestation from study areas.

In addition to responding about their own expected use of a study lounge and a recreation lounge, students were also asked the extent to which they expected others would use and benefit from these facilities (if made available). From comparisons of this data (shown in Appendix M), it appears clear that students believe they would use a study lounge more than they believe others would use it, but that they would use a recreation lounge less than they believe others would use it. This is consistent with and strengthens the views referred to above, that most individuals seek a favorable study atmosphere more than they believe others do, while they perceive a norm of conforming socialization in others. It is not surprising, then, that they tend to conform their own behavior more to the perceived norms of socializing than to norms conducive to study. A favorable study atmosphere would be easier to achieve if students could recognize the need and desire that others have for a favorable study atmosphere and relief from the constant pressure to socialize, then help and reinforce each other in their attempts to create it.

Further, students perceive that effective study lounges and recreation lounges would make a major contribution to reducing the noise and distractions which hinder study, along with improvement in acoustical qualities, furnishings, and atmosphere of student rooms and the dorm as a whole. Data reported in a section above indicates that grades are affected adversely by unfavorable physical facilities for study (e.g., crowded rooms versus double rooms) and distractions which reduce effective study time and ability to concentrate. It would seem well justified in terms of improved study atmosphere for a college or university to expend the funds needed for acoustical materials, more useful and attractive furnishings and decoration, and most of all conversion of strategically located rooms into study lounges and recreation lounges.

According to the consistent findings reported in Appendix N (and in Appendix J), students make most of their friends and spend most of their time in their own section of the dorm. In order to enhance the effective use of study lounges, then, it would seem strategic to have a small study lounge in each section of the dorm (to serve the students there, primarily) rather than (or in addition to) large, centrally located study lounges. This is the same principal that business men have recognized in establishing suburban shopping centers and paying premium real estate prices for locations where people already tend to congregate.

Along with a study lounge for each section it would also be appropriate to have a small meeting-discussion room in each section and a small recreation lounge for each two sections. This could be done easily by conversion of student rooms into, respectively, small study lounge, small discussion room, and small recreation facility. Then students would have the options of bull sessions in their own room or the recreation lounge, serious discussions in own room or discussion-meeting room, and study in own room or study room. With relevant social norms, for which the students themselves are responsible, it would increase the opportunity for a student to have a favorable study atmosphere in his own room, or go to a convenient study lounge for a change of scenery or when his roommate uses his own room for socializing. These facilities would also increase the opportunities for serious discussions and joint study sessions (without disturbing others) which are considered by many educators and students to be an important part of higher education. This arrangement would maintain the opportunity for informal social interaction, which is also an important part of education for life.

A final recommendation for improving study atmosphere, in terms of effective study and exchange of ideas, involves several useful services that could be performed for students, and by students, with appropriate guidance and coordination. These services would be in the form of providing tutors, study companions, study and discussion sessions. These are provided in many colleges and universities, formally and informally, on a small scale. But the idea here is to assess the specific needs and desires of individuals, then arrange the major logistics of getting appropriate people together.

That such services are widely desired by students is illustrated by data in Appendix M. In brief, a majority of students would like to find a tutor, and a study companion, and special study sessions, and discussions for at least one specific course they are taking at the time. Although such services are not everyone's cup of tea, there were a sufficient number (majority) of students wanting to participate in each of these programs if available. The need is made more evident by the fact that only 27% reported already having a good study companion. Interestingly, most of those already having a study companion also expressed interest in a service to help them find another good study companion and a tutor. Apparently, then, the experience of working with an effective study partner increases the likelihood of wanting to repeat this experience with someone else, but it is not easy to do so through their own existing resources.

Although only 36% expressed willingness to serve as tutor to others, the limited number probably reflects the realistic perception of ability as much as willingness. If even 25% of the students were willing and able to tutor other(s) in their strongest subject, a broadly useful service could be achieved by effective utilization of their effort and talent, and this would not put too great a time burden upon any one student serving as tutor. In fact, if the old adage that "the best way to learn something well is to teach it to someone else" is true, this would provide a useful educational experience for the tutor as well as for the tutored.

Sometimes administrators complain that study lounges and tutoring services are not used very much when provided. One relevant point is that it does not require high usage to justify their existence, as long as they help a few, and help to unsaturate an overburdened system enough to improve the overall study atmosphere. More generally relevant, however, is the point that the existence of a study lounge or a tutoring service does not mean that it is an effective study lounge or an effective service.

All too often study lounges are too large, not conveniently located, lack the attractive but efficient atmosphere needed to promote study there. Rarely are these facilities coordinated with relevant social-study norms, engendered by the administration but carried on through student responsibility. These norms must include expectations by students that the study facility is for study. Sometimes the housing administration promotes an opposite expectation in students, by temporarily housing students in available study lounges during the first part of the year--a time when there is the greatest demand for dorm space, but a time which is crucial for developing expectations and habits which will be carried over for the rest of the year. This is a high price in reduced study effectiveness that students must pay for temporary housing of a small percentage of students.

There have been few if any systematic programs to assess the study-companion and tutor needs of individuals, then make appropriate matches (except for wholesale assignment of groups with similar major or aptitude to the same dorm section, which is not the same as matching individuals appropriately). This is an area which needs careful research as well as action. Some of the procedures referred to in Appendix H are applicable here. Also relevant is the data on interaction patterns (Appendix N), which indicates the importance of convenient location and timing, especially when motivation is borderline.

These recommendations seem relevant and justified by the data presented in this report. However the ultimate effectiveness of new and existing study lounges, other structural features to improve study atmosphere, and student services will have to be evaluated by systematic research. It is proposed that relevant physical facilities and service programs will work most effectively only when relevant social-study norms become the responsibility of students themselves, whether by chance or through creative planning and hard work. These social factors will need to be assessed along with the physical structures and service programs to determine the ultimate effectiveness of the combinations recommended here, or any other combination of conditions thought to improve study atmosphere and academic motivation.

It is the author's opinion that college students can take far more responsibility than they are usually given. However, as with many roles, a responsible role will be taken by most only when the opportunity is provided. It will take a creative and trusting administration to provide appropriate opportunities for student responsibility, provide leadership and cooperation to facilitate student participation and guide them toward ways in which their efforts may be used effectively, while, at the same time, avoid stifling student initiative.

In conclusion, it is recommended to the reader with a special interest in study atmosphere, scholarship orientation, and student responsibility in these realms, that he read the account of "Study Problems and Solutions, as Reported by Students" on pages 37-44 of Appendix M, and other responses in the words of students as included in parts of Appendices D, K, and M.

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Appendix A

Variables, Instruments, and Sources of Measurement

The purpose of this report is to describe the main instruments and variables used in this research program. The descriptions and validity information are supplemented by the various reports of Appendices B-N. Also, variables less widely used are described in the reports where they are introduced rather than in this report.

For most of the studies of this research program measures were needed for certain personality dimensions and for various forms of adjustment to college. In deciding on a course of measurement the following rationale was used. In the usual personality measurement situation there is too little correspondence in the measurement of the same variable from method to method or source to source. Standard personality inventories lack dimensions directly relevant to college adjustment and do not include some of the personality variables of concern in this research program. They have been shown to have only low validity when validated against objective criteria, and are subject to distortion by defensiveness and response bias of subjects. The content and the limited response alternatives of items are objectional to many respondents. For thse reasons it was decided to use instruments which would reduce the problems and accomplish the intended purposes.

Regardless of the particular instrument used, however, there appears to be substantial variance due to the form of item, the instrument, and the source of measurement. For example, various self report measures of adjustment and personality tend to be highly intercorrelated. Social desirability and response sets (ways an individual responds to items in general, and especially to items of the same form) are often the main things accounting for the high intercorrelations among different variables measured by self report. Ratings received from observers on various characteristics tend to be substantially intercorrelated, also, but have low correlations with self report measures of adjustment. In short, there appears to be as much variance due to the source, method, or instrument as to the content or actual mode of adjustment in question. One way of separating these different modes of adjustment, particularly when obtained from the same source or by the same method, is by categories or scales of adjustment based upon factor analysis. This approach was followed in the present study. Also, to further increase the generality of the assessment of adjustment, measures of adjustment were obtained from several different sources, procedures, and instruments. These included observations of others as assessed by peer ratings and by sociometric choices, three forms of self-reports, and grades.

The main Instruments were a Descriptive Rating Form, used for self ratings and peer ratings, and a Reactions and Adjustment to Campus Environment Questionnaire (referred to as "Reactions" or "Personality Inventory" for short). In fall quarter and spring quarter two booklets were administered. One booklet was composed mainly of the Descriptive Rating Forms, preceded by approximately half of the Reactions items. The other booklet was composed of the remainder of the Reactions items, a Sociometric Questionnaire, open-end questions, forms for assessing social interaction, and other measures described in the relevant reports of Appendices B-N.

Descriptive Rating Form--for Peer Ratings and Self Ratings:

The term "peer rating" has been used to include pooled sociometric choices and rankings, but is more appropriately reserved for judgments about subjects by their peers on rating scales. With the exception of self-report personality inventory and self-concept measures rating of one kind or another is probably the most widely used form of psychological measurement. Usually it is performance in some limited sphere which is rated, e.g., leadership, teaching ability. Ratings are frequently used to validate other forms of measurement. Pooled peer ratings typically turn out to have higher validity than self-report measures or ratings by a single "expert" judge. Peers have a favorable vantage point for observing the behavior of one another over a period of time. Pooling (averaging) the ratings of several judges reduces the bias in ratings from a single judge, and increases reliability of the rating. (This is described further in Appendix C.) In spite of the relatively widespread use of ratings, and the advantages of pooled peer ratings, they have been seldom used for measurement of personality traits and interpersonal behaviors. Measurement of theoretically and socially relevant personality-behavior dimensions was the purpose of the descriptive rating scales used in this program of research.

The items were adapted from a rating instrument used by Alsobrook in the original residence hall study of health-engendering personality (Alsobrook, 1962). A rating-ranking response format (believed to reduce halo effect and force the rater to discern among ratees) had been used in the original study; but this was considered too time consuming and required too detailed instructions to use for the large number of subjects in the present study. Therefore, a six-point graphic rating scale was used for the present study. Each item consisted of a description of an interpersonal behavior tendency or personality trait along with the six-point scale, as illustrated by the following items.

CONSIDERATE OF THE FEELINGS OF OTHERS

6	5	4	3	2	1
always	usually	often	sometimes	seldom	never

WARM AND CLOSE IN HIS RELATIONS WITH OTHERS

6	5	4	3	2	1
always	usually	often	sometimes	seldom	never

Characteristics were selected to sample Health-Engendering Personality, Responsibility, Social Adeptness, and Adjustment dimensions which emerged from factor analyses of the original residence hall study. On the fall quarter version of the Descriptive Rating Form there were a total of 25 items--nine items in the Health-Engendering Personality category, four in the Responsibility category, four in the Personal-Social Adjustment category (Adjustment, for short), four in the Socially Adept category, one item asking "How well do you know this person?," and three other items used for exploratory purposes. The spring quarter version was the same, with the elimination of two Socially Adept items and the exploratory items.[1]

Each subject was assigned to rate (and be rated by) his roommate, approximately six other peers in nearby rooms, and to rate himself on Descriptive Rating Forms. Pooled peer ratings on Responsibility and Health-Engendering Personality (HEP) are theoretically and socially relevant dimensions of personality and interpersonal behavior, considered as motivational and influencing variables. Peer ratings and self ratings on Adjustment and Social Adeptness have been used as measures of mental health.

Table 1 shows the results of factor analyses of peer ratings, and Table 2 shows factor loadings of self ratings.[2] Principal components factor analysis was used, with rotation to orthogonality by the varimax procedure. As may be seen in Tables 1 and 2, the dimensions intended by the various items are fairly well defined in the factor structure. In the peer ratings there was a tendency for an extra factor with secondary loadings of the positive HEP items (HE items), especially the "warm and close" item, along with a high loading for "how well do you know him." In the peer ratings the "happy and satisfied" item had a borderline loading on the Adjustment factor, but this loading was higher for the self ratings. Overall, the factor structure of the original study from which these variables were derived (Alsobrook, 1962) was fairly well replicated. Further replication of this factor structure is described in Appendix B.

To obtain scores for individuals all items of a given category were given unit weight and averaged, with negative items reflected before

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[1] In some reports in the other appendices this has been referred to as a form with 23 items, as a compromise between the fall and spring versions. For all practical purposes it is the same form fall and spring, since the main categories of items are identical both quarters.

[2] Abbreviated wording of the items is given in Tables 1 and 2. Complete wording of the main categories may be seen in Appendices G and F. The complete set of items with the six point rating scale may be seen in Tillem (1968) or by contacting the author. On the Descriptive Rating Form items were in scrambled order (rather than the logical order of Tables 1 and 2) to reduce halo effect and other response sets from raters.

Table 1

Factor Loadings of Peer Ratings

Categories and Items	I Resp.	II Adj.	III HEP (HD-HE)	IV Know (Warm)	V Soc. Adept
Health-Engendering Personality					
HE (positive) behaviors					
Considerate of others	.40	-.03	.68	.26	.05
Warm and close	.18	.16	.40	.55	.37
Trusts others	.25	-.02	.57	.44	.13
Listens and helps others	.28	.01	.44	.56	.28
Understanding	.34	.00	.56	.41	.21
HD (negative) behaviors					
Impatient with others	.01	-.22	-.75	.00	-.04
Belittles others	-.20	-.04	-.79	.01	.00
Defensive, blames others	-.17	-.17	-.76	.03	.02
Disturbs others	-.32	-.06	-.69	.06	.02
Responsibility					
Hardworking and industrious	.85	-.10	.15	.01	.04
Dependable	.60	.01	.43	.36	.12
Uses good judgment	.73	.13	.29	.16	.11
Efficient	.85	-.10	.22	-.02	.02
Adjustment (Social-Emotional)					
Happy and satisfied	.20	.43	.32	.28	.15
Tense and anxious	.00	-.74	-.22	.18	-.05
Withdrawn and shy	.15	-.65	.10	-.28	-.35
Left out, doesn't fit in	-.05	-.67	-.15	-.24	-.35
Socially Adept					
Persuasive--influences others	.35	.28	.14	.35	.48
Clever and witty	.14	.38	.12	.37	.52
Adventurous	.01	.20	.03	.28	.66
Athletic	.09	.11	-.01	-.10	.83
Other Items					
How well know him?	.07	.15	-.14	.74	.04
Intelligent	.72	.10	.30	.18	.13
Sees self as others see him	.32	.21	.47	.28	.19
Well groomed and neat	.55	.42	.07	.19	.02

Note.--This is a representative factor structure, from one of several factor analyses done from fall and spring peer ratings. In all there were approximately 1600 sets of peer ratings from 380 subjects used in the factor analysis shown in this table.

Table 2

Factor Loadings of Self Ratings

Categories and Items	I Resp.	II Adj.	III HEP	IV Soc. Adept	V Know
Health-Engendering Personality					
HE items:					
Considerate of others	.25	.02	.73	.08	-.06
Warm and close	.13	.26	.47	.45	.11
Trusts others	.05	.15	.62	.17	.17
Listens and helps others	.19	-.01	.62	.41	.06
Understanding	.27	-.06	.71	.21	-.09
HD items:					
Impatient with others	.04	-.68	-.32	.10	.11
Belittles others	-.11	-.27	-.50	.23	.32
Defensive, blames others	-.16	-.41	-.43	.17	.10
Disturbs others	-.42	-.14	-.37	.11	.31
Responsibility					
Hardworking and industrious	.81	-.04	.02	.01	.10
Dependable	.62	.06	.41	.16	-.12
Uses good judgment	.65	.11	.27	.15	.00
Efficient	.83	.04	.13	.03	.03
Pers-Soc. Adjustment					
Happy and satisfied	.26	.53	.25	.27	.10
Tense and anxious	.03	-.74	.10	-.13	.01
Withdrawn and shy	-.07	-.56	.04	-.54	.08
Left out, doesn't fit in	-.11	-.58	-.06	-.52	.06
Socially Adept					
Persuasive--influences others	.34	.13	.09	.69	-.01
Clever and witty	.11	.17	.12	.70	.01
Adventurous	-.05	.00	.21	.58	-.17
Athletic	.03	-.02	.02	.57	.08
Other Items					
How well know him?	.01	.06	-.02	.11	-.84
Intellegent	.60	.09	.21	.26	-.09
Sees self as others see him	.26	.23	.35	.33	-.08
Well groomed and neat	.45	-.00	.07	.45	-.27

Note.--This is a representative factor structure, from one of several factor analyses done from fall and spring self ratings. Self ratings from 380 subjects were included in the factor analysis shown in this table.

averaging so that a high score always represented the positive end of the continuum and a low score the negative end of the continuum. Peer ratings on a given dimension were obtained by averaging ratings received from all peers.

Category scores obtained from self ratings may be considered "self concept" scores. Self ratings on the Personal-Social Adjustment dimension corresponds most closely to the most frequently used aspect of self concept. For this and most other forms of self ratings the terms "self concept score" and "self rating" (of "adjustment," usually) are more or less synonymous. For several of the studies used in this report a very general measure of self concept was used--a measure of "self esteem," which is the average of self ratings on all items--with scores on negative items reflected so that a high score always refers to positive self esteem or positive self concept, and a low score always refers to negative self esteem or negative self concept.

Reactions and Adjustment to Campus Environment Questionnaire:

The Reactions and Adjustment to Campus Environment Questionnaire (referred to as "Reactions Questionnaire" or "Personality Inventory" for short in the accompanying research reports) provides self report measures of several aspects of adjustment to college, mental health, and student reactions to various aspects of the campus milieu. The instrument, its rationale, and the variables derived from it are described in this section.[3]

The two main areas of adjustment for college students are academic adjustment and social adjustment, along with the search for happiness in general. Yet, there are few if any personality and adjustment inventories that measure the dimensions of Social Adjustment, Academic Adjustment, and Happiness directly. Social extroversion-introversion and anxiety-nonanxious are included in various self report inventories, and may be basic factors contributing to social adjustment, but they do not pertain directly to social adjustment. Grade point average (GPA) is the most widely accepted objective measure of academic achievement, but it was also thought useful to measure perceived academic adjustment including satisfaction with achievement, enjoyment of studies, and ability to concentrate on studies and avoid distractions. There are few if any inventories that measure happiness, even though it is one of the emotions pursued most diligently, nor have there been many research studies investigating happiness. Since these major aspects of adjustment to college are not measured adequately by existing personality and adjustment inventories, one objective for developing the Reactions and Adjustment to Campus Environment Questionnaire was to provide direct and straightforward measures of Social Adjustment, Academic Adjustment, Happiness, and several other aspects of adjustment to college. These may be considered aspects of "self concept" for those so oriented, although self ratings on the Descriptive Rating Form described above probably fit the meaning of self concept better.

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[3] The Reactions Questionnaire described here is a preliminary, experimental form developed by the author, with adequate reliability and validity for the objectives of this research program. Some of the reliability and validity information reported in this report was supported by this project, and part was supported by a grant from the University of Georgia Computer Center. The preliminary version of the Reactions Questionnaire may be seen in Tillem (1968). Further information about using this preliminary version, or the revised edition under development may be obtained from the author.

Problems with existing inventories of personality and adjustment include the following. Although a variety of personality characteristics are included, few of them pertain in a useful way to the students' adjustment to college. They are psychopathology oriented, being objectionable to respondents and not particularly relevant to the college adjustment of most of the students. Although they include many characteristics, often these are highly intercorrelated and overlap in meaning. The overlap of meaning and relationship and the profusion of traits tend to be just "too much" to interpret. It is desirable that scales (categories) of items be based empirically upon factor analysis (as some are) or logically (as others are), but it is more desirable that items be combined on the basis of logical and empirical relations. Items of most of these personality inventories are in the form of statements, to which the respondent must answer in terms of true-false or agree-disagree. To many individuals the limited, dichotomous decisions required are frustrating, and responding to statements is less meaningful than answering questions. In effect, these true-false and agree-disagree items are two-point scales, which usually have lower reliability (for individual items) than scales with more points. Most of the existing inventories are self-centered and tend to make the respondent self-conscious. A large percentage of items on some of these inventories have such strong social desirability-undesirability implications that many subjects respond more to the social desirability aspect than to the item content.

The Reactions and Adjustment to Campus Environment Questionnaire, when used as an inventory of adjustment, was designed to overcome some of these problems in the following ways.

A relatively small number of categories (dimensions of adjustment) were selected as pertinent to adjustment of college students to the campus milieu. Items are worded to convey directly the meaning of the adjustment dimension they represent, i.e., they have high face validity. Categories of adjustment are defined by a set of items which (a) convey the meaning of the adjustment dimension they represent, (b) are logically related to other items in the category and the category label, and

(c) are empirically related, by factor analysis, to other items in the category.[4]

Several procedures were used to reduce defensiveness on the part of respondents. Items pertaining to adjustment were interspersed in the questionnaire with items pertaining specifically to the campus environment. The wording of adjustment items, the instructions to the respondents, and the context of the items in the questionnaire were designed to focus the student's attention away from himself and on the environment--he is asked to provide information about his own reactions to college in terms of aspects of adjustment with which he is satisfied or dissatisfied, e.g., the respondent is asked about social adjustment from the standpoint of the effect that the campus milieu has upon students rather than focusing on the respondent as subject. For example, under social adjustment he is asked "How much have you enjoyed dormitory life?" and "How much satisfaction have you gotten out of social and other extracurricular activities?" The emphasis is relative, but in contrast to existing personality inventories there is less focus upon the individuals' own problems and successes and more upon how they find the college environment and what effects it has had upon them.

Reactions items are in the form of five-point itemized rating scales, i.e., multiple choice format with which students are familiar, with a set of alternatives which form a scale (an ordinal scale approximating an interval scale). The main part of the item is a question pertaining to some specific aspect of the campus environment, college life, or the student's reaction to it. The set of alternatives have some degree of absolute meaning, so that students' reaction or adjustment in a particular area may be interpreted in terms of the alternative represented by the score on the five-point scale. With the five-point scale format individual's scores on single items have fairly high reliability (see below).

Items are worded to be meaningful to students--wording and selection of items was based upon answers from several hundred students to open end questions asking about aspects of campus environment and college life that satisfied them and affected them favorably and about aspects that bothered them and affected them adversely. These answers were used in formulating the objective items of the Reactions instrument, where possible utilizing students' own wording (obtained from their answers to the open end questions and interviews). Students contributing answers to open end questions were not included in the samples responding to the objective Reactions instrument for this research study but were comparable to those samples.

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[4] Factor analyses were done by the principal axis method, with orthogonal varimax rotation. Data from two different time periods and from various samples were factor analyzed, so that there were several factor analyses of the data. The final dimensions are composed of items which consistently clustered together on different factor analyses and which were logically-psychologically related, rather than representing complete orthogonal relations. A minimal criterion for empirical relations was that correlations of items be higher within categories than between categories.

Feedback from students administered the Reactions questionnaire indicated that they found it interesting and answering the questions stimulated their thinking about college experiences. They did not find it objectionable, nor did they seem to be defensive. They thought the data obtained from the Reactions Questionnaire would be useful in formulating conditions to benefit future students.

The emphasis of this section of this report has been upon measurement of individual adjustment from items of the Reactions instrument. Some items were also used to assess student perceptions of various aspects of the campus milieu, which should be useful for administrative feedback. This is described in more detail in Appendix D. For now the relevant point is this. An item such as the one represented by the question, "How much have you enjoyed dorm life?" may be used for either purpose. There are two major sources of variance contributing to the answer--the dorm experience which the individual encounters, and his adjustment to it. When we average an individual's answer to this item with his answers to several other items about adjustment to various social situations, this provides a fairly representative measure of the individual's social adjustment. However, we may average the answers of a number of students to this item, and this provides information about the prevailing perception of student satisfaction from this source.

The items of the Reactions and Adjustment to Campus Environment Questionnaire are in the form of five-point itemized rating scales,[5] such as those illustrated below--one each from the categories (dimensions) of Social Adjustment, Lack of Anxiety, and Happiness.

How satisfied have you been about finding new friendships since coming to college?

(1) this is one of the things that has been very disappointing to me
(2) this has not worked out well for me
(3) moderately satisfied with new friendships
(4) fairly well satisfied in this respect
(5) completely satisfied with new friendships

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[5] Items of the Symptoms category were in the form of five-point graphic rating scales. The nature of the relative social adjustment items is different from those illustrated below, but the multiple choice format is the same. With these exceptions all items are in the form of five-point itemized rating scales as illustrated by the three sample items in this section.

How do you usually feel when people around you start a bull session in which you are expected to participate?

(1) fairly tense and anxious
(2) somewhat ill at ease
(3) neither ill at ease nor comfortable
(4) fairly much at ease
(5) very comfortable and at ease

How often have you been really happy and satisfied?

(1) rarely
(2) occasionally
(3) some of the time but not often enough
(4) much of the time
(5) almost all of the time

Scores on a given dimension are obtained by assigning unit weight to each item in that category, and averaging the scores on all items of the category so that the category score may be reported in numerical terms of the original five-point scale represented by the response alternatives. Each scale is more-or-less balanced or symmetrical, with the middle alternative (scored 3) representing a neutral or moderate level, scores of 4 and 5 representing two levels of satisfaction or favorable functioning, and 2 and 1 representing two levels of dissatisfaction or unfavorable reaction of functioning.[6]

There are six categories of social-emotional adjustment--Social Adjustment, Happiness, Compatibility with Roommate, Lack of Anxiety, Lack of Chronic Worry, and Lack of (physiological) Symptoms. "Lack of" is included in the labels of the anxiety, worry, and symptoms categories because all dimensions are scored so that a high score represents the positive end of the continuum and a low score represents the negative end of the continuum. In addition there is an Academic Adjustment category and an Attitude toward the University category. The content of the dimensions are described below.

Social Adjustment. The 12 items in this category reflect feeling accepted by others, success in social relations, satisfaction with other students and dormitory life, satisfying friendships, satisfaction from social activities and dating.

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[6] Actually the set of alternatives for various items were alternated so that for some items the 4 and 5 alternatives represented the unfavorable end of the continuum and the 2 and 1 alternatives represented the favorable end of the continuum. The direction of the response scale was alternated in order to reduce response sets. In all cases scores on items with reversed alternatives were reflected such that the favorable end of the continuum was actually scored 4 or 5 (rather than 2 or 1) and the unfavorable end scored 2 or 1 (rather than 4 or 5). In others words, the final scoring was done so that a high scale score means favorable and a low scale scores mean unfavorable.

Happiness and Enthusiasm. This category (referred to as Happiness) includes five items referring to extent and frequency of feeling happy, how often the student found something to become enthusiastic about versus how often he was bored.

Compatibility with Roommate. Roommate Compatibility is measured by four items referring to general satisfaction with roommate, study compatibility, compatibility socially and intellectually, and compatibility in daily contacts with roommate.

Lack of Anxiety. The 11 anxiety items are scored so that a high score refers to lack of anxiety and a low score refers to feelings of anxiety. Items indicate the extent and frequency of anxiety in various social situations--in bull sessions, when meeting and talking with strangers, when challenged by others, etc. Some items measure social anxiety indirectly, e.g., asking how understanding the subject felt other students were, how often he was bothered by feelings of self-consciousness.

Lack of Symptoms. For this variable subjects were asked how often during the quarter they experienced each of fifteen symptoms, e.g., tension, upset stomach, excessive fatigue, dizziness, insomnia, rapid heart beat, nervousness, constipation. Items are scored so that a high score on this category indicates infrequent symptoms and a low score indicates frequent symptoms. For some purposes three subcategories are scored separately--tension symptoms, head symptoms, and stomach symptoms (see Appendix K).

Lack of Chronic Worry. This category (Lack of Worry for short) is composed of seven items referring to worry about social relations, studies, academic achievement, finances, conditions back home, and future career, and feelings of depression and homesickness. The "chronic worry" aspect was included since these items were highly intercorrelated from fall to spring as well as loading on the same factor separate quarters. Items are scored so that a high score on this category represents infrequent worry and a low score represents frequent worry.

Academic Adjustment. This category consists of 12 items, from three semi-independent clusters, all referring to some aspect of academic adjustment--satisfaction with academic achievement, enjoyment of studies versus feeling bored by classes and studies, and ability to concentrate and avoid distractions.

Attitude toward University. This category consists of 13 items sampling student satisfaction with various aspects of the campus milieu considered central to the university as an institution, including--academic requirements, courses, administration, registration, library, meals, living accommodations, counseling and advising, rules and regulations. The mean score over all items is used as a measure of students' generalized attitude toward the university as an institution.

Relative Measures of Adjustment. Also included in the Reactions Questionnaire were several items, with a balanced five-point scale, asking freshmen to indicate whether various aspects of their adjustment were more satisfactory during the first quarter of college or the previous year back in high school. In a sense scores on these variables provide a "retroactive measure of change" in adjustment, and thus approximate the control found from having pre-post measures of adjustment. For spring quarter these items were reworded to ask respondents whether various aspects of adjustment were better that quarter or back during fall quarter. These variables are described in more detail in Appendix K, but are also described briefly below.

Relative Social Adjustment. This category consists of three items asking about social success, feeling accepted, and participation in social activities in college relative to success, acceptance, and social participation back in high school.

Relative Academic Adjustment. This category consists of two items asking about enjoyment of studies and accomplishment in studies at the university relative to enjoyment and accomplishment in studies back in high school.

Reliability:

From the standpoint of internal consistency, reliability of the Reactions categories and the Descriptive Rating categories is obtained from their factor analytic derivation, i.e., that all items of a given category measure various aspects of the same dimension is determined by the intercorrelations which enable them to load on the same factor (in addition to their logical-psychological similarity).

Reliability of Reactions items with their five-point rating scales seems high for individual items. This is illustrated by moderately high stability coefficients (test-retest correlations) over a six month period--median stability coefficient of .42 for social-emotional adjustment items (range of .32 to .61), and median stability coefficient of .42 for academic adjustment items (range of .35 to .59). These seem quite satisfactory for individual scores on single items, when it is considered that there are many real changes of experience and adjustment over a six month period that would tend to lower stability coefficients (except when they are inflated due to high social desirability-undesirability). Discriminant reliability for individual items was also shown by higher intercorrelations from fall to spring of items in the same category, compared with lower fall-spring correlations with items in other categories.[7] However it was Reactions category scores rather than scores on individual items that were used for most of the studies of this research program.

As pointed out above, factor analytic derivation assures internal consistency reliability. Stability coefficients for adjustment categories (over a six month period) are underlined in the top matrix of Table 3. These range from .52 to .69 (except for Roommate Compatibility), which is substantial stability over this period of time considering real changes that occur to lower the correlations. Further, finding higher stability for the adjustment category scores than for the individual items (e.g., compared with the median stability coefficient of .42 referred to above) is further evidence of the internal consistency of the categories.

The low stability coefficient for Roommate Compatibility is probably explained, in large part, by the fact that a number of students changed roommates from fall to spring. Since the stability coefficient was so low, a coefficient of internal consistency was calculated. This was estimated by taking the median intercorrelation among the four Roommate Compatibility items and boosting it to quadruple length by the Spearman-Brown formula, resulting in an internal consistency coefficient of .78.

The intercorrelations in Table 3 came from a sample of freshman men living in a large men's residence hall--students used as subjects for many of the studies in the various studies of this project. The intercorrelations of Table 3 were based upon 228 students for the fall quarter data (in the middle of the table), 137 students for spring quarter data (at the bottom of the table), and 137 students for the fall-spring intercorrelations at the top of the table. For the fall-spring intercorrelations fall scores are represented in the rows and spring scores in the columns. As may be seen in that matrix there is discriminant reliability as well as convergent reliability, i.e., each variable is correlated higher with itself from fall to spring than with any other variable from the other quarter. In fact stability coefficients are substantially larger than correlations with other variables. This is also a form of validity.

That the Reactions variables are not completely independent of one another, however, is illustrated by the correlations between different variables shown in the matrices of Table 3. For example, Social Adjustment has a consistently high relationship with Lack of Anxiety fall, spring, and fall-spring. This is as expected, because it is social

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[7] When scores of a number of individuals on the same item are averaged, this is considered as a measure of the prevailing student reaction for the content area represented by the item. In Appendix D satisfaction indexes or scale values are described. (These are averages of the scores of a number of students on each item.) The correlation of satisfaction indexes between two different samples was above .95 fall quarter, and spring quarter.

Table 3

Intercorrelations of Reactions Category Scores

FALL-SPRING	Soc. Adj.	Lack of Anx.	Lack of Wor.	Lack of Symp.	Happy	Acad. Adj.	Att. to Univ.	Rmt. Comp.
Social Adjustment	.56	.24	.00	.00	.35	-.17	.03	.09
Lack of Anxiety	.45	.63	.18	.29	.39	.08	-.03	.09
Lack of Chronic Worry	.10	.26	.58	.31	.20	.04	.01	.01
Lack of Symptoms	.25	.27	.25	.72	.33	.15	.25	.18
Feelings of Happiness	.35	.25	.12	.16	.52	-.11	.06	.11
Academic Adjustment	.23	.22	.00	.33	.13	.58	.23	.01
Attitude toward Univ.	.17	.06	.00	.15	.11	.09	.69	.11
Roommate Compatibility	-.11	-.15	.11	-.06	-.09	-.14	.21	.23

FALL	Soc. Adj.	Lack of Anx.	Lack of Wor.	Lack of Symp.	Happy	Acad. Adj.	Att. to Univ.	Rmt. Comp.
Social Adjustment		.52	.26	.17	.65	.05	.24	.19
Lack of Anxiety	.52		.27	.29	.44	.20	.20	.03
Lack of Chronic Worry	.26	.27		.33	.33	.29	.29	.17
Lack of Symptoms	.17	.29	.33		.21	.33	.31	-.02
Feelings of Happiness	.65	.44	.33	.21		.19	.31	.15
Academic Adjustment	.05	.20	.29	.33	.19		.40	-.05
Attitude toward Univ.	.24	.20	.29	.31	.31	.40		.15
Roommate Compatibility	.19	.03	.17	-.02	.15	-.05	.15	

SPRING	Soc. Adj.	Lack of Anx.	Lack of Wor.	Lack of Symp.	Happy	Acad. Adj.	Att. to Univ.	Rmt. Comp.
Social Adjustment		.56	.18	.18	.53	.22	.25	.23
Lack of Anxiety	.56		.32	.29	.30	.26	.03	.22
Lack of Chronic Worry	.18	.32		.29	.23	.22	.03	.10
Lack of Symptoms	.18	.29	.29		.22	.23	.14	.12
Feelings of Happiness	.53	.30	.23	.22		.16	.19	.19
Academic Adjustment	.22	.26	.22	.23	.16		.26	.13
Attitude toward Univ.	.25	.03	.03	.14	.19	.26		.27
Roommate Compatibility	.23	.22	.10	.12	.19	.13	.27	

anxiety (anxiety in social situations) which is being measured. As may be seen in the three matrices of Table 3, the other patterns of relationships among variables are fairly consistent for the three matrices. As noted above, the convergent-divergent pattern of the fall-spring matrix indicates there is sufficient independence between categories to consider them as separate variables. The relatively low correlations between adjustment categories that are not logically-psychologically related indicates that most of the variance was accounted for by item content rather than due to social desirability.[8]

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[8] Many personality and adjustment variables obtain reliability (both internal consistency and stability) from "response set," which itself is a consistent personality tendency that is stable over time. Most prominent of the various forms of response set is "social desirability," the tendency to endorse positive statements and reject negative statements, regardless of content. High correlations with other items in the same category will give the appearance of high internal consistency, and high correlations of the same items over time will give the appearance of stability. This is true consistency and true stability. But consistency and stability of what? If there are also high intercorrelations between variables it means that (a) the reliabiility found is due mainly to social desirability and other response sets rather than the content of the dimensions supposed to be measured by that category, or (b) the variables are not independent of each other, i.e., there is overlapping meaning. To demonstrate reliability of content it is necessary to show that content-unrelated dimensions have low or zero correlations with each other, and that any correlations that are not low are between psychologically-logically related variables with the magnitude of correlation reflecting the degree of logical-psychological relationship. Thus there is greater confidence in content reliability (that the variables are measuring what they are intended to measure, rather than just social desirability) when we find a pattern of convergence-divergence (a substantial difference in correlation of a variable with other variables relative to its correlation with itself) than in the case where high correlations of a variable with itself are not much higher than its correlations with other variables. Unfortunately, in reporting reliability it is rather common for investigators to report correlations of variables with themselves, but not to report correlation of these variables with other variables. Thus what appears to be high reliability may be attributable largely to social desirability and other response sets.

For at least one study reported in the accompanying reports an abbreviated set of Reactions and Adjustment variables was used. Since less students were available to complete the second of the two booklets which contained the Reactions items, especially in the spring, abbreviated categories were formed from only those items in the first booklet. Table 4 shows intercorrelations between scores on the abbreviated categories and scores on the complete categories, for a sample of 137 students with spring quarter data. This provides some information about internal consistency reliability (as noted in the table), but is included here mainly to show the extent to which the abbreviated set of variables may be substituted for the set of complete variables.

Like with the Reactions variables, the variables (category scores) derived from the Descriptive Ratings obtain internal consistency reliability from their factor analytic derivation. Intercorrelations of individual items within the same category ranged mainly from .60-.80. However this seemingly high internal consistency for individual items was due in large part to response set from use of the same form of rating scale for all items, halo effect and social desirability response sets of the raters, and lack of complete independence between variables. This is illustrated by substantial intercorrelations between items of different categories. However cross-category correlations were substantially smaller (as they would have to be for the consistent factor structure to emerge from the factor analyses), indicating relative discriminant reliability as well as convergent reliability from the standpoint of internal consistency.

Reliability from the standpoint of stability over time is shown in the intercorrelation matrices of Table 5. The top matrix shows correlations of fall quarter scores with spring quarter scores for a large sample, using mean-peer-ratings-received on the descriptive rating variables. The underlined correlations between corresponding variables are higher than the off-diagonal correlations between different variables (except for one correlation of spring Adjustment with fall Social Adeptness), illustrating convergent reliability relative to discrimination between variables. The correlations (across this six month period) between non-corresponding variables provides information about the relationship among the variables. For example, the HEP and Responsibility variable have a moderate relationship with each other, and Social Adeptness and Social-Personal Adjustment are strongly related. However, in validity analyses described below it will be shown that they are sufficiently differentiated to be considered as separate variables.[9]

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[9] The six-month stability coefficients for the present research were .42, .49, .47, and .40. Although there is the convergent-discriminant reliability, it is surprising that the stability coefficients for these peer rating variables are not as high as the ones for the self report variables of the Reactions instrument (shown in Table 3). Neither do they approximate the six month stability of the peer rating variables that were found in the original residence hall study (Alsobrook, 1962)--.82 for HEP, .84 for Responsibility, .52 for Socially Adept, and .64 for

Stability coefficients and fall-spring correlations are shown for a smaller sample in the middle matrix of Table 5. The 55 subjects included in this set of correlations were all subjects with ratings recevied from three or more peers fall and spring, who were in a smaller sample of 60 students. Fifty-seven subjects of the smaller sample received ratings from three or more peers in the spring on the graphic rating scales of the Descriptive Rating Form described above, along with ratings from three or more peers on a rating-ranking form similar to that used in the original dorm study (Alsobrook, 1962). The stability coefficients over the four week interval between these two sets of ratings may be seen in the bottom matrix of Table 5, along with correlations between other variables over this time period. (Socially Adept was not included in the rating-ranking form.) The stability coefficients are .74 for HEP, .78 for Responsibility, and .77 for Adjustment, which are quite adequate, especially considering that different rating formats and some rewording of items was used.

The same pattern of correlations between different variables for the larger sample (in the matrix at the top of Table 5) is maintained for the smaller sample (the two matrices at the middle and bottom of Table 5). More detailed examination (from factor loadings of Table 1 and other data reported in Alsobrook, 1962) indicates that it is the "consideration for others" component of the HEP category and the "dependable" component of the Responsibility category that account, mainly, for the strong empirical

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(Footnote 9 cont'd)

Personal-Social Adjustment. There are several factors which probably contribute to the lower stability coefficients in the present setting. In the original study a special rating-ranking method was used and subjects were given some training in rating (avoiding halo effect, etc.), which probably increased the reliability there relative to the reliability obtained in the present study with the graphic rating scale and untrained raters. In the present study, also, more of the rating assignments (who rates whom) were changed from fall to spring than in the original study. Since a certain portion of the variance is usually attributable to individual response sets, this spurious source of empirical relationship was reduced in the present study. As shown in Appendix C, validity of averaged peer ratings is a function of number of raters and how well ratee is known by raters. In the present setting the subjects had not had a chance to know each other as well when the fall ratings were made (as in the original dorm study), and on the average were rated by fewer raters. Probably, all of these factors contribute to lower the stability coefficients for the descriptive rating variables in the present study. This information should be useful for increasing reliability of future ratings. For now, however, the important point is that the pooled peer ratings on the descriptive rating categories in the present setting had sufficient stability reliability considering the convergent-discriminant pattern and the fact that this much stability was obtained in spite of real changes of personality and behavior during the six month interim.

Table 4

Intercorrelations of Scores on Abbreviated Adjustment Scales with Scores on Complete Adjustment Scales

	Soc. Adj.	Lack of Anx.	Lack of Wor.	Lack of Symp.	Happy	Acad. Adj.	Att. to Univ.	Rmt. Comp.
Social Adjustment	.87	.48	.19	.15	.51	.30	.24	.23
Lack of Anxiety	.46	.75	.13	.10	.09	.19	.10	.20
Lack of Chronic Worry	.12	.31	.78	.14	.13	.06	-.07	.06
Lack of Symptoms	.16	.28	.32	1.00	.22	.24	.12	.09
Feelings of Happiness	.48	.32	.36	.24	.76	.33	.32	.29
Academic Adjustment	.16	.25	.21	.18	.08	.90	.23	.16
Attitude toward Univ.	.27	.08	.10	.14	.26	.24	.85	.22
Roommate Compatibility	.20	.19	.11	.11	.16	.14	.26	1.00
No. of items in abbreviated categories	5	6	3	15	1	7	6	4
No. of items in complete categories	12	11	8	15	5	12	13	4

Note.--The underlined correlations of corresponding categories are inflated, since scores on items of abbreviated categories are included in scores of complete categories. On the other hand, the underlined correlations between corresponding categories are probably inflated less than would be expected from overlapping items, since the items were not evenly nor systematically divided between the two booklets (such as by split-half, matching and random selection). As may be seen by comparing this table with the intercorrelations of Table 3, the pattern of relationships among variables is maintained. This and the magnitude of the underlined correlation coefficients may be considered as further evidence of reliability from the standpoint of consistency. Note that the reliability correlations of 1.00 for the Lack of Symptoms and Roommate Compatibility categories are meaningless since all the items are identical for the abbreviated set and the complete set (i.e., there was no abbreviated version of these variables since all items for these two categories were in the first booklet). N=137 for these intercorrelations. The contribution of scores on complete categories is represented in the columns of this table, and the contribution of scores on partial categories is represented in the rows.

Table 5

Intercorrelations of Peer Ratings on Descriptive Rating Variables Over Time

STABILITY OVER SIX MONTHS, LARGE SAMPLE (N=207):

Spring Scores (rows)	Fall Scores (columns)			
	HEP	Resp.	Soc. Adept	Adj.
Health-Engend. Person.	.42	.36	.11	.20
Responsibility	.32	.49	.03	.14
Social Adeptness	.26	.33	.47	.36
Soc.-Pers. Adjustment	.16	.14	.42	.40

STABILITY OVER SIX MONTHS, SMALL SAMPLE (N=55):

Spring Scores (rows)	Fall Scores (columns)			
	HEP	Resp.	Soc. Adept	Adj.
Health-Engend. Person.	.56	.45	.23	.23
Responsibility	.46	.55	.23	.23
Social Adeptness	.13	.08	.46	.45
Soc.-Pers. Adjustment	.29	.22	.50	.46

STABILITY OVER FOUR WEEKS, SMALL SAMPLE (N=57):

Graphic Rating Scale (rows)	Rating-Ranking Method(cols.)			
	HEP	Resp.	Soc. Adept	Adj.
Health-Engend. Person.	.74	.42		.17
Responsibility	.60	.78		-.09
Social Adeptness	.53	.29		.64
Soc.-Pers. Adjustment	.18	-.19		.77

Note.--Stability coefficients (correlation of corresponding variables from one time to another) are underlined.

relationship between HEP and Responsibility. From the fall-spring intercorrelations shown in Table 5, Social Adeptness was not clearly differentiated from Social-Personal Adjustment. From the factor loadings of Table 1 it appears to be the specifically social aspects of both categories which account for most of the similarity. As will be shown below, validity matrices seem to warrant the differentiation of these two areas of adjustment. However, there is no doubt that they are not entirely independent of one another empirically.

Validity:

Validity may be examined most systematically by examining correlations between Descriptive Rating variables and self report variables obtained from the Reactions and Adjustment to Campus Environment Questionnaire. These are shown in Table 6 for Self Ratings on the Descriptive Rating variables, and in Table 7 for Peer Ratings on those variables. Correlations of variable(s) from one set predicted to be correlated with variable(s) from the other set are underlined.

For example, Self Ratings of Responsibility were predicted to be correlated with self reports of Academic Adjustment, since Responsibility has been consistently related to GPA in several different studies. As will be seen by examining the Responsibility column for fall and spring data in Tables 6 and 7, Self Ratings on Responsibility have substantial correlations with self reports of Academic Adjustment and moderate correlations with GPA (especially in the spring, while discriminant validity is found in the fall); while Peer Ratings on Responsibility have substantial correlations with GPA and moderate correlations with self report of Academic Adjustment. Although the highest correlations are with variables obtained from a similar source (self report with self rating, grades from professors with peer ratings), there is still validity across sources of measurement as well as from one instrument to another. It should be noted, also, that these are theoretically relevant variables and not different measures of the same construct. In Appendix M it is shown how Academic Adjustment (but not the other self report Reactions variables) has high correlations with GPA.

Self Rating on Adjustment (Social-Personal Adjustment) is highly correlated with the Social Adjustment, Lack of Anxiety, and Happiness variables from the Reactions Questionnaire. Social participation and acceptance, lack of tension and anxiety, and happiness are the components of the Adjustment category of the Descriptive Rating Form, so these correlations should be substantial. It is interesting that the corresponding correlations (with Social Adjustment, Lack of Anxiety, and Happiness) are also validated for Peer Ratings of Adjustment, although not so high as when correlations are confined to the same source (self report)--compare the Adjustment columns of Tables 6 and 7. It is fitting that Social Adjustment should have the highest correlations (.42 fall, .25 spring) with peer ratings on Adjustment, since this is the aspect of the Adjustment category that is most observable to others, compared with feelings of anxiety and happiness which are more subjective. This, probably, is also why we find Lack of Chronic Worry and Symptoms having moderate correlations with Self Ratings on Adjustment but not with Peer Ratings on Adjustment. It is probably these more subjective components of the Adjustment category (anxiety and happiness, which are hardest for others to judge) that account for the correlations between Self Ratings of Adjustment and self report of Lack of Chronic Worry and Lack of Symptoms.

The Reactions Social Adjustment category is correlated with ratings of Social Adeptness as well as with ratings of Social-Personal Adjustment, at about the same level for Peer Ratings and at a lower level for Self Ratings. However, following the rationale above we predict the Social Adeptness rating category to be correlated higher with self reports of Social Adjustment than with self reports of Lack of Worry and Lack of Symptoms. This holds for Peer Ratings and Self Ratings of Social Adeptness. Ratings of Adjustment are further differentiated from ratings of Social Adeptness by Peer Ratings and Self Ratings on Adjustment being correlated higher with Happiness and Lack of Anxiety--this is predicted since the Adjustment rating category includes happiness and anxiety components, but Social Adeptness does not.

Responsibility is consistently related to quarterly GPA, Yearly GPA, and self report of Academic Adjustment. Although Responsibility and HEP were substantially correlated when considering intercorrelations of peer ratings (Table 5), they are clearly differentiated from each other in the validity matrices of Tables 6 and 7.

The only other relevant comparison between rating variables and self report variables from the Reactions Questionnaire is between Peer Ratings of HEP and self reports of Roommate Compatibility. In answers to open-end questions students had mentioned consideration from others and friendliness among the characteristics they most desired in a roommate, and inconsiderate, disturbing, unkind behavior as the characteristics they most wanted to avoid in a roommate. These are traits measured by the HEP category, and peer ratings should have more validity than self ratings in how these behaviors are displayed to others. As predicted there was a significant correlation between peer ratings on HEP and self report of Roommate compatibility. (As shown in Appendix H this relationship is higher when roommate ratings are obtained on HEP, because roommate compatibility depends more upon how a person acts with his roommate than how he acts with peers in general.)

Although the focus of the validation coefficients from Tables 6 and 7 has been upon certain variables more than others, all Descriptive Rating variables and all but one Reactions variable, Attitude toward the University, have entered into at least one validity coefficient. And the Attitude toward the University variable was reported in Appendix K as having a pattern of correlations with various other variables which could serve as evidence of validity for that variable--e.g., substantial correlation with variables measuring enjoyment of studies, and satisfaction with the college experience, as well as differentiating dropouts (who dropped out for reasons other than grades) from non-dropouts.

In summary, all relationships relevant for convergent validity were tested by correlating self report Reactions variables with Self Ratings and Peer Ratings on the Descriptive Rating categories. All predicted validity coefficients (the ones underlined) were confirmed by statistically significant correlations of moderate-to-substantial magnitude. Although the correlations were higher when variables from both instruments

Table 6

Correlations of Self Ratings with Self Report Reactions-Adjustment Variables and Grades

Self Reports on Adjustment Variables from the Reactions Questionnaire:	Self Ratings on the Descriptive Rating Variables							
	Fall				Spring			
	HEP	Resp.	Soc. Adept	Adj.	HEP	Resp.	Soc. Adept	Adj.
Social Adjustment	.39	.35	.41	.63	.28	.16	.28	.50
Lack of Anxiety	.31	.39	.32	.59	.41	.23	.45	.59
Lack of Worry	.12	.20	.01	.31	.25	.14	.03	.35
Lack of Symptoms	.15	.13	.03	.30	.33	.16	.01	.38
Happiness	.24	.21	.25	.54	.16	.15	.11	.39
Academic Adjustment	.12	.32	-.07	.12	.13	.55	.13	.10
Attitude toward Univ.	.15	.25	.02	.24	.01	.11	-.03	-.02
Rmt. Compatibility	.18	.11	.04	.11	.20	.19	.25	.22
Grades:								
Predicted GPA	-.09	.05	-.17	-.10	-.05	.10	-.07	-.11
Fall GPA	-.12	.11	-.18	-.14	-.06	.16	-.02	-.15
Spring GPA	-.10	.15	-.11	-.02	.01	.31	.00	-.06
Yearly GPA	-.09	.12	-.18	-.12	-.05	.24	-.05	-.16

Note.--Correlations were obtained from a sample of 296 freshman men. Since some subjects lacked complete data (especially for variables from spring Reactions Questionnaire), it was decided to use the largest sample possible for each correlation, i.e., in calculating each correlation coefficient we included all subjects with scores on both variables entering into that correlation. For the correlations between fall self rating variables and fall scores on the self report Reactions variables N=219; for correlations between fall self ratings and various GPA variables N ranged from 218 to 239. For correlations between spring self ratings and spring self report Reactions variables N=123; for correlations between spring self ratings and various GPA variables N ranged from 205 to 207. As a frame of reference for interpreting statistical significance, when N=200 a correlation coefficient of .14 reaches the .05 level, and .18 reaches the .01 level. When N=125 a correlation coefficient of .17 reaches the .05 level and .23 reaches the .01 level.

Table 7

Correlations of Peer Ratings with Self Report Reactions-Adjustment Variables and Grades

Self Reports on Adjustment Variables from the Reactions Questionnaire:	Mean Peer Ratings Received on Descriptive Rating Variables							
	Fall				Spring			
	HEP	Resp.	Soc. Adept	Adj.	HEP	Resp.	Soc. Adept	Adj.
Social Adjustment	.19	.11	.42	.42	-.09	-.15	.27	.25
Lack of Anxiety	.09	.09	.18	.21	-.14	-.13	.10	.16
Lack of Worry	.15	.16	.10	.15	.06	-.06	.02	.07
Lack of Symptoms	.03	.07	.13	.15	.14	.05	.05	.06
Happiness	.12	.09	.22	.30	.01	.02	.20	.21
Academic Adjustment	.10	.30	-.11	.00	.00	.26	-.02	-.12
Attitude toward Univ.	.13	.18	.08	.11	-.02	.05	-.06	-.20
Rmt. Compatibility	.34	.28	.26	.27	.19	.16	.14	.09
Grades:								
Predicted GPA	.07	.23	-.04	-.02	.15	.34	.08	-.10
Fall GPA	.12	.34	-.01	-.02	.15	.46	.14	-.03
Spring GPA	.14	.31	-.01	-.02	.18	.46	.12	-.10
Yearly GPA	.16	.37	-.01	.01	.19	.52	.12	-.12

Note.--Correlations were obtained from a sample of 296 freshman men. Since some subjects lacked complete data (especially for variables from spring Reactions Questionnaire), it was decided to use the largest sample possible for each correlation, i.e., in calculating each correlation coefficient we included all subjects with scores on both variables entering into that correlation. Peer ratings of all subjects receiving ratings from three or more peers were included. For the correlations between fall peer rating variables and fall self report variables N=225; for correlations between fall peer rating variables and grade variables N=263 for Predicted GPA, N=277 for Fall GPA, N=254 for spring GPA, and N=253 for Yearly GPA. For the correlations between spring peer rating variables and spring self report variables N=127; for correlations between spring peer rating variables and various GPA variables N ranged from 236 to 241. As a frame of reference for interpreting statistical significance, when N=200 a correlation coefficient of .14 reaches the .05 level, and .18 reaches the .01 level. When N=125 a correlation coefficient of .17 reaches the .05 level and .23 reaches the .01 level.

had overlapping content, there was also validity in the form of theoretically relevant relationships between variables without overlapping content. There were higher relationships when both sets of variables came from the same source (self report Reactions variables correlated with Self Ratings, in contrast to Peer Ratings). However validity was maintained when measurement was from different sources. Discriminant validity was shown by finding lower correlations with other variables with which a given variable had no predicted relationship. Confidence in the validation of these two sets of variables against each other is strengthened further by replication or cross validation with fall data and spring data.

Peer rating variables were further validated by correlations with sociometric variables and grades, as shown in Tables 8 and 9. In the original dorm study construct validity was established for the HEP variable by strong correlations with number of sociometric choices received for role of Confidant (person felt comfortable and at ease with, person with whom subject would discuss a personal problem). Responsibility was validated by a strong correlation with sociometric choices received for roles of Leader and Co-worker, and with GPA. The same relationships are shown for a large sample in the present project in Table 8. Also, sociometric choice for interesting and entertaining Conversationalist is included to validate the Social Adeptness peer rating variable. As indicated in the note of Table 8, the sociometric variables are attenuated due to uneven rate of return from different sections of the dorm. In spite of this, discriminant validity is shown by all predicted relationships (underlined) being higher than other correlations in the rows and columns.

For the large sample spring quarter sociometric scores were even more attenuated by more uneven rate of return. For this reason replication of the correlations between peer rating variables and sociometric variables were limited to students in two sections who had fairly even and complete rate of return. As may be seen in Table 9 the underlined convergent validity coefficients are much larger (than in Table 8), with discriminant validity as well. Although the Conversationalist role was not included in spring sociometric choices, there were questions on which subjects indicated the people in their section whom they knew well and those they spent the most time with. As shown in Table 9 these two variables are correlated higher with all three social interaction related peer rating variables than with Responsibility, as expected. But, as found here and in Appendices C, F, and M, Responsibility and Task Role have higher correlations with GPA. The fact that Task Role is substantially correlated with HEP and Social Adeptness, as well as Responsibility, is due to the fact that the leadership sociometric question referred to leader of a group discussion, and the other question contributing to Task Role referred to choices for co-worker. HEP characteristics are relevant to both of these roles, and Social Adeptness is relevant to discussion leader.

In summary, further validation of peer rating variables was found by correlations of these variables with sociometric and grade variables, with convergent and discriminant validity demonstrated. These are relationships which were replicated in the original dorm research

Table 8

Intercorrelations of Peer Rating, Sociometric, and Grade Variables, Fall Quarter Data

	Mean Peer Ratings Received				Grades	
	HEP	Resp.	Soc. Adept.	Adj.	Fall GPA	Spring GPA
Choices for Sociometric Roles:						
Leader	.24	.40	.31	.33	.31	.30
Confidant	.35	.30	.34	.34	.06	.04
Conversationalist	.04	.04	.35	.30	.02	.05
Grades:						
Fall GPA	.12	.34	-.01	-.02	.84	
Yearly GPA	.16	.37	-.01	.01		.84

Note.--N varied from 260-277 for different correlation coefficients since subjects having data on some variables lacked data on other variables. Sociometric scores are number of choices received for each role. Note that validity of these variables in the fall is attenuated due to different rate of return of questionnaires from different sections, i.e., the student most appropriate for a certain role may get a lower score than a student in another section if the rate of return from his section is low, limiting the number of choices possible for him to receive.

Table 9

Intercorrelations of Peer Rating, Sociometric, and Grade Variables, Spring Quarter Data

	Mean Peer Ratings Received				Grades	
	HEP	Resp.	Soc. Adept.	Adj.	Spring GPA	Yearly GPA
Choices for Sociometric Roles:						
Task Role	.55	.60	.50	.16	.47	.54
Confidant	.59	.26	.38	.23	.06	.07
No. Known Well	.55	.31	.41	.35	.21	.21
No. Spend Time With	.25	-.03	.19	.22	-.03	-.01
Grades:						
Spring GPA	.31	.66	.21	-.06		.88
Yearly GPA	.36	.73	.26	-.01	.88	

Note.--N=49.

(Alsobrook, 1962). Also replicated was the finding that ratings of esteem-for-others (mean of ratings given others, averaged over all items and all ratees) was significantly correlated with HEP--.35 for peer ratings received (N=281), and .51 for self ratings on HEP (N=262), with fall quarter data. Further, discriminant validity was shown by finding HEP correlated higher (than the other peer rating variables), with esteem-for-others.

Still further validation of the descriptive rating variables and the adjustment variables from the Reactions Questionnaire was done in an unpublished study by Alsobrook and Hays, by correlating these variables with variables from several personality inventories for a sample of 60 subjects. The personality inventories included Edwards' Personal Preference Schedule (PPS), Cattell's 16 Personality Factor inventory (16PF), Gough's California Personality Inventory (CPI), and the manifest anxiety, social introversion, and depression scales of the MMPI--all widely used and "standardized" personality inventories. Due to incomplete data of subjects the N for various correlations varied.[10]

Although the sample was small, especially for Reactions variables, and variables from the personality inventories do not have high validity themselves (as noted above), it was thought useful to show correlations of the peer rating, self rating, and Reactions variables with relevant variables from the more widely known personality inventories. The largest correlations for each instrument are shown in Table 10. Further criteria for inclusion of correlations in Table 10 were that they be statistically significant and/or especially relevant for considering validity. A further criterion for including correlations of personality inventory variables with descriptive rating variables was that the correlation should be consistent for self rating and peer rating on the same variable. In boxes with no correlations shown, there were no correlation coefficients approaching statistical significance.[11]

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[10] For correlations of peer ratings and self ratings with MMPI, PPS, and CPI the N varied from 51-52 for various instruments; for correlation of peer ratings with 16PF N=46; for correlation of self ratings with 16PF N=44. For scores on the Reactions variables N varied from 32-33 for correlations with MMPI, PPS, and CPI, and N=28 for correlations with 16PF.

[11] The means and correlations of this sample are quite similar to those of the larger sample used, as indicated in tables above and in other appendices. However one unique feature about this sample, especially the subsample of subjects with data on the self report variables, is that peer rating scores on Responsibility (and to a lesser extent on HEP) have moderate to substantial correlations with variables measuring social anxiety, e.g., Lack of Anxiety of Reactions Questionnaire, MAS and SI scales of MMPI, Social Extroversion of 16PF. A corrolary with this is that these various measures of social anxiety are positively correlated with GPA. These unusual correlations for this sample are not shown in Table 10, since they do not seem to be meaningful and seem unique to this sample. For example, Lack of Anxiety is essentially unrelated to Responsibility or GPA for the larger sample which is more representative. Apart from these relations the other relations between peer rating variables and self report variables appear to be as meaningful as one can expect from different sources of measurement.

Table 10

Correlations of Rating and Reactions Variables with Variables from Standard Personality Inventories

Predictors	MMPI Variables	Edwards' PPS Variables	Gough's CPI Variables	Cattell's 16PF Variables
PEER RATINGS:				
HEP		-.29 Aggression	.44 Socialization .25 Communality .27 Achv't.-Conf.	-.26 L: Suspicious
Responsibility		.37 Endurance .29 Order	.31 Responsibility (.45 Rating-Ranking)[1] .53 Socialization .38 Femininity .23 Self Control .30 Achv't.-Conf. .30 Achv't.-Indep.	.39 G: Conscientious
Social Adeptness			.34 Dominance .30 Sociability	
Social-Pers. Adjustment	-.36 Soc. Introversion -.17 Manifest Anxiety -.13 Depression	-.26 Succorance	.25 Dominance .34 Sociability .20 Communality	.37 SO Extroversion
SELF RATINGS:				
HEP		-.40 Aggression	.27 Socialization .37 Communality .41 Achv't.-Conf.	-.41 L: Suspicious
Responsibility		.39 Endurance .25 Order	.36 Responsibility .34 Socialization .36 Self Control .45 Achv't.-Conf. .20 Achv't.-Indep.	.42 G: Conscientious

Table 10 (continued)

Predictors	MMPI Variables	Edwards' PPS Variables	Gough's CPI Variables	Cattell's 16PF Variables
Social Adeptness	-.51 Depression -.55 Soc. Introversion -.21 Manifest Anxiety		.56 Dominance .59 Sociability	.54 SO Extroversion
Social-Pers. Adjustment	-.35 Depression -.49 Soc. Introversion -.26 Manifest Anxiety	-.38 Succorance	.49 Dominance .53 Sociability .44 Communality	-.49 SO Anxiety .50 SO Extroversion
SELF REPORT ON REACTIONS Q'AIRE:				
Social Adjustment	-.38 Manifest Anxiety -.31 Soc. Introversion	.43 Intraception	.44 Dominance .31 Responsibility .37 Achv't. Conf.	.17 SO Extroversion -.37 SO Anxiety -.52 O: Insecure -.38 L: Suspicious
Lack of Anxiety	-.56 Manifest Anxiety -.36 Depression -.55 Soc. Introversion	-.60 Succorance -.28 Deference	.47 Dominance .63 Social Presence .48 Sociability .48 Self Acceptance -.35 Socialization	.55 SO Extroversion -.40 SO Anxiety .48 E: Dominant .69 H: Not Shy
Lack of Symptoms	-.32 Manifest Anxiety -.28 Soc. Introversion	-.43 Succorance -.29 Deference	.36 Dominance .45 Social Presence .37 Sociability .38 Self Acceptance	.34 SO Extroversion -.46 SO Anxiety .47 H: Not Shy -.43 O: Insecure .47 A: Not Aloof
Lack of Worry	-.47 Manifest Anxiety	-.38 Achievement -.29 Dominance .27 Nurturance .28 Heterosexuality		

Table 10 (continued)

Predictors	MMPI Variables	Edwards' PPS Variables	Gough's CPI Variables	Cattell's 16PF Variables
Happiness	-.27 Soc. Introversion	.28 Heterosexuality	.26 Dominance .35 Achv't-Conf. .35 Femininity	
Academic Adjustment	-.38 Depression	.35 Dominance	.39 Dominance .38 Responsibility .43 Achv't.-Conf. .34 Femininity	-.42 O: Insecure
Attitude toward University		-.31 Aggression .25 Endurance	.44 Responsibility .43 Femininity	.46 G: Conscientious -.37 L: Suspicious -.37 O: Insecure
Roommate Compatibility	-.22 Manifest Anxiety -.22 Depression -.28 Soc. Introversion	-.43 Succorance -.38 Abasement .37 Dominance	.51 Dominance .27 Social Presence .24 Responsibility	-.59 O: Insecure -.57 SO Anxiety

[1] When peer ratings on Responsibility were made by the more valid rating-ranking procedure (referred to above and in Appendix F) the correlation with the CPI self report Responsibility variable rose from .31 to .45. Although the rating-ranking method also increased the validity correlations of other peer rating variables, only this one was included since it was especially meaningful.

As pointed out above, one of the main reasons for using the descriptive rating and Reactions variables for this research project was that there were few existing instruments for efficient and valid measurement of these variables. Thus, we should not expect direct correspondence of rating and Reactions variables with variables of the personality inventories. One variable that does correspond, however, is the Lack of Anxiety variable from the Reactions instrument and the anxiety variables from MMPI and 16PF. As may be seen from Table 10 our Lack of Anxiety variable correlated -.55 with the manifest anxiety scale of the MMPI and -.40 with the second order anxiety factor from the 16PF. Since these measures (manifest anxiety and 16PF anxiety) only correlated .37 with each other, it appears that our Reactions Lack of Anxiety variable has more in common with each of these than they have with each other. Lack of Anxiety was correlated even higher, however, with the social introversion scale of the MMPI and the second order extroversion-introversion factor from 16PF, as well as with other socially relevant variables, which fits with the interpretation of the Reactions Lack of Anxiety variable as measuring social anxiety.

At first it may seem that the Social Adjustment variable from the Reactions instrument should be correlated higher than Lack of Anxiety with the social introversion scales from the personality inventories. However, Social Adjustment is intended to measure several aspects of adjustment to college rather than tendencies of social extroversion-introversion. Social Adjustment includes satisfaction with dorm life, satisfying friendships, satisfaction and acceptance of others, etc. These aspects are reflected, for example, by correlations with factor L (trusting-suspicious) of 16PF and Responsibility of CPI. Social Adjustment was included in the Reactions instrument because it was not included in the other sources. However it should (and does) have moderate relationships with various measures of social extroversion-introversion and social anxiety, which may be considered as traits which influence Social Adjustment at college, but do not completely determine it. As may be seen in Table 10 the Lack of Symptoms variable also has substantial correlations with variables with which Lack of Anxiety is correlated--this is meaningful considering that it shares a psychopathological orientation with some of the personality inventory variables and shares physiological symptoms with anxiety as measured by MMPI and 16 PF.

Without going into further detail, most of the correlations of the descriptive rating and Reactions variables with the personality inventory variables are meaningful, e.g., HEP correlated negatively with L (suspiciousness) of 16PF, Responsibility correlated with Responsibility of CPI and G (conscientiousness)of 16PF , etc., even though there are few variables which have direct correspondence across instruments.

Overall, the descriptive rating variables and Reactions variables appear to have satisfactory validity. Further evidence is provided in various technical reports of the appendices. It is inevitable, of course, that there are more criteria available for validating some variables than for others. Several other bits of validity information will be summarized below to partially fill in some of these gaps.

The Academic Adjustment category of the Reactions Questionnaire is composed of three components--Satisfied with Academic Achievement, Enjoyment of Studies, and Ability to Concentrate on Studies. Data illustrating validation of these variables was shown in Appendix M. For example, Satisfied with Achievement had the highest correlation with GPA, but Enjoy Studies and Concentrate on Studies were also significantly correlated with GPA. All three components correlated with Hours Studied, but Enjoy Studies correlated highest with Hours Studied and with Happiness. Concentrate on Studies correlated highest with Lack of Anxiety, Lack of Symptoms, Lack of Worry.

In Appendix H the Roommate Compatibility variable of the Reactions Questionnaire was validated by several substantial correlations with indirect measures of roommate compatibility, e.g., roommate rating on HEP, choice for roommate as Confidant. A Tension Symptoms subcategory of the composite Lack of Symptoms subcategory received some validation by differentiating dropouts from controls (whereas other symptoms did not so differentiate them), as described in Appendix K. In Appendix M, both Enjoy Studies and Satisfied with College were shown as correlates of Happiness, as well as the high correlation of Happiness with Social Adjustment described in Appendix L.

In addition to the various forms of validation cited above, there was a consistent finding that Social Adjustment was correlated higher than any other Reactions variable with various measures of social interaction. For a sample of 228 in fall quarter Social Adjustment was correlated .31 with Total Sociometric Choices Received; the only other Reactions variables significantly correlated with Total Sociometric Choices Received were .21 with Happiness and .21 with Lack of Anxiety. For the same sample Social Adjustment was correlated .27 with mean peer ratings received on How Well Known, and .32 with esteem-for-others--not large correlations, but statistically significant and the only Reactions variable having significant correlations with these variables. For a sample of 31 subjects in the spring (the same sample used with personality inventory variables) Social Adjustment was correlated higher than any other Reactions variable with several self report variables of social interaction: .31 with No. Known Fairly Well, .38 with No. Spent Time With (half hour or more with per day); also correlated .26 with peer reports of No. Know Him Well, and .26 with No. Spend Time with Him; and had a point biserial correlation of .31 with Pledge Fraternity. In summary, although these correlations are not large, they are statistically significant and higher than correlations involving any other Reactions variables, which supplements the previous validity data for Social Adjustment.

Table 11 shows the means, standard deviations, and N's for the freshmen doubles sample on the main variables fall quarter and spring quarter. This is the relatively large sample used for the largest portion of research studies of this research project, and comprises the control group or a basis for formation of the control group with which dropouts and students in crowded rooms were compared (reported in Appendices K and M). This data is given as a frame of reference for the reader who would like to examine scores critically in relation to the various reports of the other appendices.

Table 11

Means, Standard Deviations, N's of Main Variables for Freshman Doubles Sample

Variables	Fall Mean	Fall s.d.	Fall N	Spring Mean	Spring s.d.	Spring N
Self report of Social-Emotional Adjustment:						
Social Adjustment	3.77	.59	228	3.69	.51	137
Happiness	3.50	.57	228	3.29	.60	137
Roommate Compatibility	3.85	.87	228	4.02	.74	137
Lack of Anxiety	3.92	.45	228	3.96	.46	137
Lack of Chronic Worry	3.18	.56	228	3.25	.52	137
Lack of Symptoms, composite	4.43	.42	228	4.42	.39	137
Lack of Tension Symptoms	4.08	.79	228	4.05	.71	137
Lack of Digestive Symptoms	4.58	.67	228	4.58	.44	137
Lack of Head Symptoms	4.47	.41	228	4.51	.38	137
Relative Social Adjustment	3.07	.93	228	3.77	.75	137
Self report of Academic Adjustment:						
Academic Adjustment, composite	3.37	.56	228	3.39	.52	137
Satisfied with Achievement	3.57	.67	228	3.64	.65	137
Able to Concentrate on Studies	3.15	.72	228	3.26	.69	137
Enjoy Studies	3.33	.79	228	3.10	.78	137
Relative Academic Adjustment	3.66	1.02	228	3.11	1.20	137
Self report of Attitudes toward University:						
Attitude toward University	3.43	.53	228	3.20	.53	137
Mean Peer Ratings Received:						
Health-Engendering Person.	4.39	.52	281	4.23	.48	244
Responsibility	4.43	.52	281	4.17	.60	244
Social Adeptmess	3.65	.63	281	3.73	.64	244
Personal-Social Adjustment	4.59	.44	281	4.77	.51	244
Roommate Ratings:						
Health-Engendering Person.	4.37	.84	274	4.25	.81	205
Responsibility	4.52	.75	274	4.26	.94	205
Social Adeptness	3.77	.92	274	3.97	1.09	205
Personal-Social Adjustment	4.63	.73	274	4.83	.79	205
Self Ratings:						
Health-Engendering Person.	4.62	.60	262	4.46	.59	212
Responsibility	4.55	.67	262	4.24	.82	212
Social Adeptness	3.94	.87	262	3.90	.92	212
Personal-Social Adjustment	4.67	.68	262	4.72	.77	212
Ratings of How well know him:						
Mean Peer Received	3.85	.71	263	4.17	.61	231
Roommate Received	5.21	.91	274	5.41	.88	205

Variables	Mean	s.d.	N
Grade related variables:			
High School Average	29.79	5.72	279
CEEB-Verbal	483.27	86.98	278
CEEB-Math	519.70	80.67	278
Predicted GPA	77.05	5.71	278
Fall GPA	77.54	8.36	291
Winter GPA	76.82	8.49	274
Spring GPA	77.08	8.05	266
Year's GPA	77.54	6.94	265

Note.--Some subjects had incomplete data, and different data was missing for different subjects. Therefore the actual N varies for different variables. However there is considerable overlap in subjects having data on different variables. In short, for comparing scores on different variables with each other or comparing scores on the same variable at different times, it may be considered the same or similar sample.

Appendix B

Comparisons of Males and Females in Peer Ratings of Personality

"Sugar and spice and everything nice is what little girls are made of..." is one way folklore has characterized the female in considering differences between the sexes. Folklore has held that women are more timid, warm, tender, loving, and emotional than their male counterparts. These alledged differences in characteristics between the sexes have been partially supported through descriptive research. A representative example is Edwards (1953) finding that females have significantly higher means on deference, affiliation, succourance, nurturance, intraception, abasement, and change, while males have significantly higher means on achievement, autonomy, dominance, heterosexuality, and aggression.

It is not unusual for researchers to ignore differences between sexes. And for this reason much of the research utilizing measures developed for one sex may not be relevant or generalizable to the other sex. For example, Carlson and Carlson (1960) in a review of the literature in 14 consecutive issues of the Journal of Abnormal and Social Psychology found that of a total of 108 studies using both male and female subjects, only 32 investigated the sex differences. In 22 of these 32 cases (69%) the sex differences were statistically significant. A similar review by our research staff of 1965-1966 journals showed a similar picture. Thus, it seems important to investigate these sex differences before applying measures developed from one sex in research with the other sex.

The current research project on college student interaction and the previous work by Alsobrook in this area has been confined to male college students (as has most of the work on social interaction, which is often sponsored by the military and/or conducted by male researchers). It seems equally important to study the effect of student interaction and campus environment upon the learning and adjustment of female college students. But a question arises as to the comparability of the measures between male and female students. Relatively little research has been done regarding sex differences in peer ratings, but sex differences found in other areas would lead one to expect sex differences in peer ratings. Partially as a basis for extending the research to female college students, and as an important question in its own right, this research study was undertaken to compare males and females in their peer ratings of personality traits and interpersonal behaviors.

Alsobrook (1962) has used factor analyses of pooled peer ratings to define several personality dimensions which have been found to have social as well as theoretical significance. For example, Alsobrook's Responsibility factor compares favorably with measures of academic aptitude as a predictor of college grades. The Adjustment factor is correlated with self-report measures of adjustment and self-esteem. In a college dormitory, the Health-Engendering Personality factor was significantly correlated with "esteem for others" and being sociometrically chosen by others for therapeutic roles; students with high HEP scores were more likely (than others) to help their roommates to improve in adjustment and grades.

In summary, these peer rating variables have been useful in studying social interaction and adjustment of male college students. The main objective of this study was to test the generality of these measures to female college students. The main question to be answered by this study concerned sex differences in peer ratings. This question was investigated from two viewpoints: factor structure or organization of traits, and mean differences between the sexes on these traits.

Method

For this study peer ratings were used from 400 men college students (approximately 85 per cent freshmen) and 104 women college students (approximately 50 per cent freshmen). Ratings were administered in residence halls, and each subject was assigned to rate several peers in nearby rooms. For each subject ratings of approximately five peers were completed and included for this study. Ratings of interpersonal behavior tendencies were made on six-point graphic rating scales. The rating instrument used for men is described in a companion report. The rating instrument used for women was identical, but included less items. The analyses for this study included only the 17 items common to both samples. These items are shown, with abbreviated wording, in the tables of results below.

Data from each sample were factor analyzed by the principal axes method. Factors with eigenvalues greater than .95 were rotated by the varimax method. Factor loadings of rotated factors were used for statistical comparisons of factor structure. For each item the mean and standard deviation over all subjects in the respective samples were obtained for comparing mean differences between sexes. For the validation study of women college students mean peer ratings received by each subject were calculated on the category defined by each factor, giving unit weight to all items defining the category and reversing the scoring on negatively worded items.

Results and Discussion

The items defining each factor correspond to the organization of items given in Table 1, which shows the factor loadings for both samples.

From the factor analyses of the male data and the female data the personality (factor) structure appears remarkably similar between the sexes, as well as corresponding to the factors derived from the original residence hall study (Alsobrook, 1962). The only exception was that

Table 1

Factor Structure of Rating Items for Male and Female Samples

Items	Female			Male			
	III Resp.	II Adj.	I HEP	I Resp.	II Adj.	IV HE	III HD
Responsibility							
Hardworking	.87	-.03	-.15	.89	-.02	.18	-.10
Uses good judgment	.66	.26	.37	.71	.15	.35	-.24
Dependable	.59	.23	.55	.60	.08	.52	-.30
Efficient	.89	.05	.18	.89	-.04	.18	-.16
Adjustment							
Clever	.04	.71	.23	.11	.58	.52	.05
Withdrawn and shy	.06	-.82	.07	.15	-.80	-.20	-.10
Left out of things	-.02	-.80	-.16	-.04	-.77	-.25	.13
Tense and anxious	-.16	-.48	-.12	-.10	-.70	.19	.39
Happy and satisfied	.24	.58	.36	.20	.41	.47	-.19
Health-Engendering Personality							
HE items:							
Warm	.12	.65	.47	.17	.31	.76	-.15
Listens to others	.24	.48	.57	.25	.17	.76	-.21
Understands	.24	.49	.62	.31	.10	.69	-.34
Trusts others	.34	.31	.64	.26	.04	.64	-.38
Considerate	.28	.25	.75	.39	-.01	.49	-.54
HD items:							
Gets impatient	-.03	-.05	-.81	-.02	-.16	-.22	.77
Belittles	-.15	-.04	-.82	-.24	-.02	-.22	.78
Acts defensive	-.10	-.12	-.79	-.22	-.10	-.18	.74
Variance rotated factors	2.78	3.58	4.57	3.05	2.43	3.50	2.77
% of variance	25%	33%	42%	26%	21%	30%	23%

for the male sample the Health-Engendering Personality (HEP) items split into two factors--a health-engendering (HE) factor of positively worded items, and a health-depressing (HD) factor of negatively worded traits.[1]

As an objective measure of the degree of similarity, coefficients of congruence were calculated between the corresponding factors for the male and female samples.[2] The coefficients were .96 for Responsibility, .91 for Adjustment, and the female HEP factor had a coefficient of congruence of .82 with the male health-engendering factor and of -.93 with the male health-depressing factor. The coefficient of congruence matrix is shown in Table 2. To use a more familiar statistical technique, an intercorrelation matrix was run using items as subjects and factor loadings as scores. Table 3 shows this intercorrelation matrix, which includes intercorrelations between factors for the separate sexes as well as across sexes. In Tables 2 and 3 correlations between corresponding factors (across sexes) are underlined. Substantial correlations between non-corresponding factors, within sexes as well as between sexes, indicate that these factors are not truly orthogonal. This lack of independence is probably accounted for by response sets and by true relationships between certain factors. Over and above the substantial correlations between factors, we find a pattern of discriminant and convergent validity in the correspondence of factor structure (following the logic of Campbell & Fiske, 1959). The similarity of factor structure was further confirmed by a third statistical technique, cannonical analysis. In summary, these statistical indices of similarity indicate close correspondence of personality structure across sexes for peer ratings on the Responsibility, Adjustment, and Health-Engendering dimensions.

A study of mean differences between sexes indicated that females tend to rate their peers significantly higher on positively worded items, but that there was no significant difference between sexes on negatively worded items. These results are shown in Table 4. More detailed analyses led to the interpretation that: females tend to perceive others more favorably in general, i.e., tend to have a more positive orientation toward others than do males; and that males are less discerning in their ratings of others on negatively worded items, tending to respond more to the tone of the item than to its content. These findings, as well as other results referred to in this report, are described in more detail in the thesis by Gorden (1967).

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[1] A companion report shows a factor analysis of the male sample which included all 25 items used in the peer ratings for men students. For that analysis the health-engendering and health-drpressing items loaded on the same factor (with different signs of course) as they did for the female sample in this study.

[2] A coefficient of congruence is similar to correlating the factor loadings of the male sample with the factor loadings of the female sample. Like a correlation coefficient the maximum relationship is 1.00.

Table 2

Coefficient of Congruence Matrix

Females	Males			
	Resp.	Adj.	HE	HD
Resp.	.96	.16	.58	-.57
Adj.	.33	.91	.77	-.38
HEP	.60	.32	.82	-.93

Table 3

Intercorrelation Matrix of Factor Loadings of Factors from Male and Female Samples

		Females			Males			
		Resp.	Adj.	HEP	Resp.	Adj.	HE	HD
Females	Resp.		.26	.52	.98	.30	.34	-.61
	Adj.	.26		.51	.26	.96	.81	-.39
	HEP	.52	.51		.59	.37	.86	-.97
Males	Resp.	.98	.26	.59		.27	.38	-.67
	Adj.	.30	.96	.37	.27		.66	-.28
	HE	.34	.81	.86	.38	.66		-.74
	HD	-.61	-.39	-.97	-.67	-.28	-.73	

Table 4

Differences Between Means of Males and Females

	Means		St. Dev.		Diff.	
	F[b]	M[c]	F	M	$(\bar{X}_f-\bar{X}_m)$	t
Responsibility						
Hardworking	4.50	4.36	1.07	1.10	.14	1.17
Good judgment	4.42	4.21	.95	1.01	.21	1.93
Dependable	4.71	4.46	1.02	1.11	.25	2.12*
Efficient	4.46	4.26	1.10	1.15	.20	1.59
Adjustment						
Clever and witty	3.81	3.79	1.27	1.21	.02	
Not withdrawn[a]	4.78	4.74	1.01	1.10	.04	
Not left out[a]	4.88	4.83	.94	.99	.05	
Not anxious[a]	4.61	4.75	.89	.93	-.14	1.28
Happy and satisfied	4.64	4.62	1.10	.96	.02	
HEP						
HE						
Warm and close	4.13	4.00	1.21	1.21	.13	.97
Listens to others	4.22	3.81	1.28	1.26	.41	2.98**
Understanding	4.32	3.97	1.14	1.16	.35	2.78**
Trusts others	4.47	4.16	1.07	1.09	.31	2.63**
Considerate	4.59	4.30	1.12	1.15	.29	2.32*
Not HD						
Not impatient[a]	4.54	4.57	.99	.97	-.03	
Not belittling[a]	4.76	4.89	.98	.93	-.13	1.18
Not defensive[a]	4.92	4.96	.98	.97	-.04	

[a] Direction of scoring reflected so that the higher score is the more favorable.

[b] Female N = 104

[c] Male N = 400

* $p < .05$

** $p < .01$

A further test of the relevance of these measures for female college students was made by a validation study. Several of the more clearcut relationships which had been found for males in the current research and the previous residence hall study by Alsobrook (1962) were tested for the present female sample. Pooled peer ratings (mean ratings received) on the Responsibility, Adjustment, and Health-Engendering categories from fall quarter ratings were utilized as predictors. Responsibility correlated .42 with yearly grade-point average, and .37 with sociometric choices received for filling leadership roles. Mean peer ratings received on Adjustment correlated .36 with self-ratings on Adjustment and had a similar correlation with self-esteem. Health-Engendering scores correlated .38 with sociometric choices for filling quasi-therapeutic roles, and .49 with ratings of roommate compatibility. The results of these validity analyses are quite similar to those found with men college students, described in companion reports from the current program of research and in the original residence hall study (Alsobrook, 1962).

In summary, there are some differences in peer ratings of males and females, mainly in favorableness of interpersonal perception and degree of discrimination in rating. However the factor structure for these personality variables is quite similar between sexes, ans these measures appear quite relevant for studying the effects of student interaction with women college students.

Appendix C

Validity of Ratings as a Function of the Number of Raters

Ratings, of one form or another, are among the most frequently used methods of psychological measurement--for example, ratings of student characteristics, achievement, leadership, teacher effectiveness, job performance, etc. Most typically the "expert" judgment of a single authority or superior is used, although pooled (averaged) peer ratings usually have greater predictive validity. Pooling the ratings of several judges has the advantage of balancing out individual response bias, and if the judges are peers there is the additional advantage of having raters who have a good opportunity to observe the characteristic behavior of the ratee in a variety of situations.

Only self-report measures, usually in the form of personality inventories or self concept scales, have been more widely used than ratings. In research studies which have compared the three approaches, pooled peer ratings have usually been found to have higher validity with outside creteria than self-report measures and ratings by single judges. In fact, ratings are quite often used as criteria against which to validate self-report measures, including such widely used personality inventories as Cattell 16-PF, Edwards PPS, Gough CPI, and Guilford-Zimmerman Temperament Scale.

Guilford (1954) suggests that one of the advantages of pooling the ratings of several judges is the cancelling of individual response biases and recommends that reliability should increase as the number of raters is increased, but as a negatively accelerating function. However, there is little research on the pooling of personality ratings, nor is this approached from the standpoint of validity (in constrast to reliability) of theoretically relevant variables. The purpose of this study was to investigate the validity of peer ratings with different numbers of judges. The approach was to correlate ratings by different numbers of judges with an outside criterion, for which there was a known relationship between the peer rating variable and the criterion.

In several factor analyses of peer ratings and self ratings a "Responsibility" factor consistently emerged. This seems to be a motivational variable referring to a conscientious and systematic approach to work. Items refer to traits such as dependable, efficient, use of good judgment, hardworking and industrious behavior. Ratings received by each individual (from several peers) are averaged (over raters and responsibility items) for his Responsibility score. In three separate samples at two universities a strong relationship has been found between pooled peer ratings on Responsibility and grade-point-average, typically higher than .40, which is strong enough to rival the relationship between academic aptitude tests and grades. Based upon this repeated replication we had the known relationship needed as a criterion for this study. Responsibility is also a theoretically relevant variable, consistently correlated with sociometric choices for leader and coworker and a characteristic contributing to success in many endeavors important to society.

"Health-Engendering Personality" (HEP) is another variable which has consistently emerged in factor analyses of peer ratings and self ratings. The HEP scale includes items reflecting consideration for others, warm interpersonal relations, trust and positive expectation of others. Like responsibility scores, HEP scores are usually obtained by averaging ratings received by several peers on the items of the HEP scale. The social significance of Health-Engendering Personality is illustrated by studies which have found significant relationships between college students' HEP scores and their roommates' adjustment, and a field experiment which found a significant relationship between HEP scores of psychiatric aides and improvement of their patients. Construct validity is illustrated by significant correlations of HEP scores with esteem-for-others and being sociometrically chosen for the role of confidant. It is the relationship between HEP scores and sociometric choices for confidant that was chosen for this study.

Method

The main data for this study consisted of multiple peer ratings made by students in a college men's dormitory during the spring quarter. Responsibility and HEP items were in the form of six-point graphic rating scales, along with other items on a descriptive rating form. (The other items are considered as buffer items for this study.) From each rating sheet scores on Responsibility and HEP items were averaged for scale scores on these variables. For the main data, reported in Table 1, the sample was limited to those 137 subjects who received ratings from exactly five peers during the spring quarter. For each subject sets of one, two, three, and four peer ratings were randomly selected from the five sets of ratings. Thus, the sample of subjects (recipients of the ratings) was held constant, but five sets of ratings were varied--from one, two, three, four, and five peers. For each subject Responsibility and HEP scores were calculated separately for each of these five sets of ratings. These were the predictor variables.

For Responsibility the criterion was yearly grade-point-average (GPA), and for HEP the criterion was number of sociometric choices received for the role of Confidant. To obtain scores on Confidant each resident was asked to choose three people from his floor of the dorm for several roles. The Confidant score was total number of choices received from answers to two sociometric questions--"With whom do you feel comfortable and at ease," and "...Whom would you choose if you needed to talk over a personal problem."

For the data reported in Table 2 self ratings on Responsibility and ratings received from roommate on Responsibility were used as predictor variables, along with mean peer ratings received (excluding the roommate from calculation of these peer ratings). The number of peer ratings received by each subject varied from three to six, with five peers as the mode. Scores on these predictor variables were obtained for fall quarter and spring quarter. Yearly GPA was used as the criterion. The sample used for the analyses of these scores consisted of 296 freshmen living in double rooms. Due to incomplete data the number of subjects varied somewhat for the various correlations.[1] The number of subjects entering into each correlation are shown, along with the correlation coefficients, in Table 2.

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[1] Those subjects with data on one variable were not always the ones with scores on other variables. For each correlation coefficient all subjects with scores on both variables (entering into that correlation) were included.

Table 1

Increase of Validity as a Function of the Number of Raters

Number of Raters	Correlation of Responsibility with GPA	Correlation of HEP with Confidant
1	.23	.17
2	.38	.29
3	.44	.31
4	.47	.38
5	.51	.40

Table 2

Correlations of Yearly GPA with Responsibility Ratings from Several Sources

Source of Ratings	Fall Rating on Responsibility		Spring Rating on Responsibility	
	N	r	N	r
Self Rating	262	.12	212	.24
Rating Rec'd. from Roommate	274	.32	205	.34
Mean Peer Rating Rec'd.	263	.36	231	.54

Results

As shown in Table 1, the relationship between the personality variable and the criterion increases as a function of the number of raters. The correlation between Responsibility and GPA increases from .24 when one rater is used to .51 when Responsibility is based upon mean ratings received from five peers. The correlation between HEP and Confidant increases from .17 with one rater to .40 when HEP scores are based upon the pooled ratings of five peers. The increase in size of validity coefficients increases with number of raters as a negatively accelerating function, i.e., there is a diminishing rate of return from the inclusion of additional raters. However there are still moderate increases of validity with inclusion of the fourth and fifth raters.

From Table 2 it can be seen that self rating on Responsibility is less valid than peer ratings, when validity is determined by correlation with the GPA criterion. However the validity coefficient increases from .12 in the fall to .24 in the spring for self rating of Responsibility. Self rating in the spring is comparable to rating by one peer (r of .23 from Table 1). In fall and spring rating from roommate correlates higher with GPA (.32, .34) than does self-rating. In the spring roommate rating on Responsibility approximates the validity of averaged ratings from two randomly selected peers (.38 from Table 1). In the fall rating from roommate has validity approximating the validity from pooled ratings of several peers (.32 for roommate rating and .36 for mean pooled rating received, shown in Table 2). However pooled peer ratings in the spring have validity far surpassing that from ratings by a single roommate (.54 versus .34, in Table 2).

Discussion

From Table 1 the main finding, of validity increasing as a function of the number of raters, appears quite clearcut.

The results from Table 2 also suggest that how well the ratee is known by the rater makes an important difference. For example, in the fall when peers from nearby rooms have not gotten to know each other so well (as they do later), ratings from a single peer who knows the ratee well (his roommate) approximates the validity of pooled ratings from several peers who know him less well (correlation between Responsibility and GPA of .32 for roommate rating compared with .36 for pooled peer rating). In the spring quarter, when peers from nearby rooms have had increased opportunity to know and observe each other, the validity of pooled peer ratings on Responsibility far exceeds the validity of roommate rating (.34 versus .54), while the validity of roommate rating on Responsibility remains about the same from fall to spring (.32 compared with .34). Also, the validity of roommate ratings approximates the validity of pooled ratings from two randomly selected peers (correlations of .34 for roommate rating from Table 2, compared with .38 for pooled ratings by two peers from Table 1).

Knowledge of ratee seems logical as a contributing factor to validity. The interpretation, given above, is empirically confirmed for this study by peer ratings on a six-point itemized rating scale answering the question, "How well do you know this person?" (the person being rated). In the fall means on this item were significantly higher for roommate ratings than for ratings by other peers. Knowing by roommate only increased slightly from fall to spring, while knowing by other peers increased significantly from fall to spring. Thus, as one might expect, roommates get to know each other pretty well by the end of the fall quarter, but it takes longer for neighbors further away to get to know a person as well.[2]

The main finding, of increased validity as a function of the number of raters, has been considered mainly in terms of the relationship between Responsibility and GPA. However the same conclusion was reached when correlating HEP with Confidant.[3] This replication, with two sets of variables, increases confidence in the conclusion about validity of peer ratings. For Responsibility and for Health-Engendering Personality the findings are based, not upon fortuitous relationships, but, upon previously established relationships of theoretical and social significance.

At least for certain characteristics it seems that pooled peer ratings have greater validity than measures derived from self reports. That contention was supported by the findings in this study -- self-ratings on Responsibility predicted GPA no better than ratings on Responsibility by a single peer, and less well than ratings from two or more judges. That this conclusion is not limited to self report on this particular variable is illustrated by spring quarter data from a subsample of 60 students from the same dormitory.[4] The means and patterns of relationships among various variables were quite similar to the larger samples referred to above, so they may be considered comparable samples for this purpose. For this sample additional data were available on several widely used personality inventories.

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[2] Some authors have warned that, other things being equal, validity of ratings is reduced if the rater is ego involved with the ratee. Our data does not refute this, but suggests that knowledge of ratee is important to validity, even if knowledge is associated with ego involvement (being roommates). If knowledge is held constant, ego involvement (e.g., being roommates) may reduce validity of ratings.

[3] In this study pooled peer ratings on HEP predicted choices for Confidant at a lower level (.40) than in the original study finding this relationship (.71, Alsobrook, 1962). In the present study the sociometric variable was attenuated due to differential rate of return of sociometric questionnaires by students in various sections of the dorm; thus a student who serves the confidant role admirably would receive only a moderate number of choices if the rate of return of questionnaires were less from his section of the dorm than from other sections. In spite of the attenuation of the relationship due to this factor, there was the relative increase of validity as a function of number of raters on HEP.

[4] Some of the subjects lacked data on some of the variables. For each correlation coefficient only subjects with scores on both variables (entering into that correlation) were included. The actual number of subjects entering into the various correlation coefficients ranged from 45 to 57.

With this smaller sample the correlation between pooled peer ratings on Responsibility and GPA was even greater than for the samples reported above (.61). As with the sample above, self rating on Responsibility did not predict GPA nearly as well (correlation of .31). For comparison those variables from personality inventories supposed to correlate highest with grades or most similar to Responsibility were selected. The correlation of these variables with GPA were as follows: Achievement scale of Edwards PPS .12; Responsibility scale of CPI .27, Intellectual Efficiency scale of CPI .08, and Achievement scale of CPI .19; 16PF scale B (bright-dull) .17, 16PF scale M (eccentric-conventional) .23, and 16PF scale Q1 (experimenting-conservative) .06. None of these surpassed self-ratings on Responsibility in predicting GPA, although with multiple measures they have the advantage of capitalizing on fortuitous relationships. None of the self-report personality variables came close to rivaling the validity (correlation with GPA) of pooled peer ratings on Responsibility.[5] Further, pooled peer ratings on Responsibility correlated much higher with sociometric choices for leader than any of the self-report variables supposed to predict leadership.

In summary, we may draw the following conclusions from this research. Pooled peer ratings have greater validity than self report measures (on characteristics which are based upon observable behaviors meaningful to the judges). Greater validity is obtained from judges who know the ratee well (have had greater opportunity to observe him) than from judges who know him less well. The validity of peer ratings increases with the number of raters, but as a negatively accelerating function. In other words, substantial gains in validity accrue from pooling the ratings of several judges.

Implications

These results carry the implication that greater validity would be achieved in many studies if pooled ratings of relevant characteristics were used instead of alternative approaches that are more commonly used, and if pooled ratings of several judges were substituted for ratings by a single judge. With this measurement approach we would expect, for example, stronger relationships between personality variables and other theoretically relevant variables. This study also suggests that pooling the ratings of several judges is one of the more useful criteria for validating other kinds of measures.

Pooled ratings of several judges on relevant variables appears to be a generally useful form of psychological measurement. We believe that the dissemination and application of this finding is important in increasing the validity of research by personality researchers, and by educational researchers concerned with any judgmentally derived variables. For example, the selection of instructional material and questionnaire items are usually based upon the intuitive judgment of one or a few individuals. The present research suggests that the intended purposes might be met better (the judgments would be more valid) if the selection criteria were developed into ratings, and the ratings of at least five judges pooled. This is assuming, of course, that the judges are capable of making the called for discriminations on relevant characteristics, and that the validity of the procedure be checked for different kinds of judgments and objects to be judged.

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[5] Self reports on a variable designed to deal with academic achievement (in contrast to relevant personality variables similar to Responsibility) does predict GPA at a much higher level. For the subsample of 60 subjects Academic Adjustment in the spring correlated .45 with spring GPA, and the correlation was .52 for the sample referred to in connection with Table 2 above.

Appendix D

Student Perceptions of the Campus Milieu[1] as Feedback for Educational Administrators

How do students perceive and react to various aspects of the campus milieu? What is their attitude toward their college or university? Toward the academic program? The administration? Its rules and regulations? Opportunities for social development?

Potentially useful information? For what? How can educational administrators and faculty learn about these student reactions, and how is this information relevant to them?

In a college or university the student viewpoint is important because students provide the primary purpose for justification of the institution. One objective of higher education is developing young adults into responsible citizens, through a process of inquiry. Recent events on campuses around the nation and the world have shown that college students are concerned about the processes that effect them and their education. If educators are to maximize the education and development of college students, it should be useful to understand their perceptions of the campus milieu (which in turn influence their attitudes and behavior). Information about student attitudes and perceptions are needed to facilitate communication with students, and to learn more about the impact of various aspects of the campus milieu upon students and their development.

Some avenues of student feedback have always been open to educational administrators, e.g., meetings with student leaders, the student newspaper, student complaints, and other contacts with individuals who come to the attention of authorities. However, many perceptive educators have come to realize that these sources of information are limited, unrepresentative of the student body, and by their partisan nature are biased to varying degrees. It seems that a more systematic and objective method is needed for assessing student perceptions of the campus milieu.

Expediency also requires information about student attitudes toward the college, its administration, and its programs and policies. It is generally realized that a person's attitudes and even his overt behavior are influenced as much by his perception of a situation as by

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[1] As used in this paper "campus milieu" refers to social, intellectual, administrative, and other aspects of the campus community, as well as the physical environment of the college.

its objective reality. Now, more than ever before, educational administrators are coming to realize the need for a barometer to gauge the prevailing perceptions and attitudes of the student body. The need has been raised by expressions of highly vocal and often violent discontent. While those who display extreme behavior often constitute a small minority, sometimes large numbers of their peers join them in demonstrations and disruptive activity. Usually it is difficult to gauge student reaction before violence or other confrontations occur. Then it is difficult to determine the extent to which sentiments of the more vocal actors are shared by other segments of the student body, and the extent to which these attitudes are influenced by the confrontation itself (in contrast to individual attitudes developed over a longer period of time). The opportunities for averting crises would be increased if the administration had a systematic method for assessing student attitudes toward the college. Hopefully information about student reactions would reach the educator and be taken into account before some issue reaches crisis proportions. Hopefully, also, collection of information about student perceptions would be motivated by genuine concern for student needs and relevant change, and not merely to avert crises.

The rapid growth of higher education places new demands upon the educational administrator. It means regular increases in the number of students to be accounted for, housed, fed, and scheduled for classes. New fields of knowledge and advances in older disciplines demand new instructional techniques, new and expanded facilities, and new courses, all of which increase the scope of administrative responsibility. There are many changes in students themselves, the college input as well as after they reach the campus. Although it is an organizational entity, a college or university performs a variety of functions. Even for the administrator of the small college it is not hard to lose the perspective that is needed for evaluation of various aspects of the college's functioning. Not all aspects of the organization perform with equal effectiveness. But how is the educator to know about the relative effectiveness of various aspects of the campus milieu, and their impact upon students?

The purpose of this report is to describe a method which appears to be useful for obtaining feedback about student perceptions of the campus milieu. On the one hand the method includes a procedure for assessing generalized attitude toward the college and its administrative operations, which may serve as a useful barometer to gauge the dimension of student satisfaction-discontent. On the other hand it includes a procedure for using student perceptions to compare the relative effectiveness of specific aspects of the campus milieu--in such areas as instruction, study conditions, registration, meals, housing, academic standards, social opportunities, etc. As a measure of generalized attitude toward the institution we combine student reactions to several different (but related) aspects of the campus milieu--mainly those aspects involving administration and policies most centrally associated with the college as an institution. As feedback about the relative effectiveness of various aspects of the campus milieu we consider student perceptions of each aspect separately, expressed in a meaningful and quantitative form.

Data about the collective perceptions of a representative sample of the student body enable the educational administrator to make a clearer evaluation of any given aspect of college life. Such data may be considered as an estimate of the effectiveness of current procedures, and the value of innovations. Student reactions toward various aspects of the campus milieu may not be completely veridical with the college as "objectively" viewed from other frames of reference. However, students have a unique (and perhaps optimum) vantage point for experiencing various aspects of the campus milieu first hand. For now, suffice it to say that the important thing about any aspect of the campus milieu is its impact upon students. At a minimum, when systematically and objectively measured, these student perceptions of the campus milieu may serve as guideposts of areas for educational administrators and faculty to examine more closely.

Recently the study of campus environments has been increasing in popularity, as indicated by inventories developed by several major aptitude testing organizations. Typically these inventories consist of a number of statements to which students respond true-false or agree-disagree. Although individual items have relatively low reliability, they are usually combined into several reliable categories or scales, each category reflecting some broad aspect of the campus culture or college environment. Usually the results are presented in relative form only, by comparing the standing of a given college with a norm based upon other colleges. However, information about the student body may have some absolute meaning, in terms of how many students say they have done this or that. Some of these procedures provide interesting information and contribute to an understanding of the student body. However many educators still recognize the need for a method to provide more specific information, relevant for educational-administrative decisions.

The procedure described below provides a measure of students' generalized attitude toward the institution, and student perceptions of specific aspects of the campus milieu. Following are some of the features of this procedure. (1) Items are in the form of questions (rather than statements), and answers are in terms of alternatives which are meaningful to respondents (students) and consumers (educational administrators). (2) Alternatives form five-point itemized rating scales (in contrast to the dichotomous or three-point scale typically used), with unusually high reliability for the form of information reported (representative reliability coefficients greater than .95). (3) Answers have some degree of absolute meaning for a given college, without the necessity of comparison with a norm of other colleges. (4) Information is provided about specifics--important aspects of the campus milieu which affect students and are of concern to the administration and faculty, e.g., study atmosphere of residence halls, intrinsic interest of courses, meals, registration, advising, sources of specific worries, opportunity for participation in social activities, avenues of communication with administration, etc. (5) Quantitative indexes are provided for comparing the relative effectiveness of various aspects of the campus milieu, and change of effectiveness over time. Also, colleges and components of colleges may be compared with each other or a norm.

The Method

The items referred to in this report are from a questionnaire entitled "Reactions and Adjustment to Campus Environment." It was developed for the joint purpose of assessing social-emotional adjustment and academic adjustment of individuals, and for obtaining students' collective perception of various aspects of the campus milieu. The use of this instrument to measure individual adjustment is described in Appendix A. This report is confined to its use for assessing student perceptions of the campus milieu. Although the 33 items included for this purpose do not cover all aspects of the campus milieu, they provide a wide enough sampling to illustrate the method and its use.[2]

To insure that relevant areas were sampled and that questions and alternatives were meaningful to respondents, item wording was based upon content analyses of students' answers to open-end questions. As may be seen in the sample items below, the multiple-choice alternatives for each item form a five-point itemized rating scale, with each alternative having a moderate degree of absolute meaning.

> How satisfied are you with the opportunities available for students to express their complaints or suggestions and have them listened to and taken account of?
>
> (1) very dissatisfied
> (2) slightly dissatisfied
> (3) dissatisfied as much as satisfied
> (4) fairly satisfied
> (5) very satisfied

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[2] The questionnaire referred to in this report was an experimental edition developed by the author. The purpose of this report is to describe the method (rather than the questionnaire per se) and the utility of student reactions obtained from this or subsequent editions of the questionnaire. A revised edition, with a more complete sampling of campus milieu and for more general use, is under development. Further information can be obtained by contacting the author.

To what extent does it seem like the college recognizes and is interested in the individual person?

(1) makes me feel like little more than a number
(2) rather little interest in the individual
(3) a moderate amount of interest in the individual
(4) quite a bit of interest in the individual
(5) there seems to be a great deal of interest in the individual

How satisfied were you with the registration procedure?

(1) very dissatisfied
(2) slightly dissatisfied
(3) dissatisfied as much as satisfied
(4) fairly satisfied
(5) very satisfied

The first two items above were chosen for illustration because they represent current issues of national concern. As for the method, these items illustrate two forms of alternatives used for answers. Five degrees of satisfaction (for a given aspect of campus milieu) provide a standard set of alternatives, illustrated with two items above. The other approach is to use alternatives which refer specifically to the aspect of the campus milieu in the question. Both types are arranged so that the middle alternative represents a relatively neutral region with two steps of positive reaction and two steps of negative reaction. A standard set of alternatives (in terms of five levels of satisfaction) has the advantage of providing the respondent with a standard frame of reference with which to react to all aspects of the campus milieu, and provides the consumer with a standard frame of reference for comparing the relative impact of various aspects of the campus milieu. However, inclusion of some items with more specific alternatives (especially when formulated in students' own language) gives the respondent and the consumer more of a feel for the meaning, and increases the respondents' interest in answering.

For both fall and spring quarters, for a research sample, the mean of items with specific alternatives was quite close to the mean of items with alternatives in terms of standard degrees of satisfaction (3.46 compared with 3.47 in the fall, and 3.26 compared with 3.34 in the spring). Thus information obtained from these two types of response scales may be considered fairly comparable.

Respondents are instructed to mark the alternative for each question that most nearly expresses his perception or reaction to that aspect of the campus milieu. The numbers identifying the alternatives are used as scores, so that for each item we have possible scores of

5, 4, 3, 2, 1 for five levels of a satisfaction-dissatisfaction or favorable-unfavorable continuum for that aspect of the campus milieu.[3]

Attitude toward the college or university. For purposes of a research program with which this study is connected, scores were averaged from students' responses to 13 items pertaining to various aspects of the university--two items pertaining to administrative concern for students (the first two of the three items illustrated above), four items pertaining to the dorm, and one item each pertaining to the areas of courses, academic requirements, registration, library, meals, rules and regulations, counseling and advising. For a sample of 296 freshmen living in a large men's residence hall the mean was 3.43 at the end of fall quarter, and 3.20 at the end of spring quarter--on the favorable side of neutral in the fall, but less favorable in the spring. Validity of this variable was shown in several research studies, in which this measure of attitude toward the university was related to academic adjustment, happiness, satisfaction with the college experience, and whether or not a person would become a dropout.

As a barometer to gauge student satisfaction-discontent we would reduce the number of items pertaining to the dorm and increase the number pertaining to instruction, administration, and rules and regulations. A representative sample of students would need to be included, preferably large enough for comparison of the attitudes of different categories of students. Such information, obtained periodically, would serve as a useful weather vane of the climate of student reaction toward the institution, and could be used as a basis for crisis prevention or initiation of needed change. However the data would be even more useful when examined for student reactions to specific aspects of the campus milieu.

Student perceptions of specific aspects of the campus milieu. The terms "student perceptions" and "student reactions" are used almost interchangeably. The instructions of the questionnaire point out that individuals have different experiences with various aspects of the campus milieu, and ask for the student's individual reactions, considered separately for each aspect of the campus milieu. The instructions emphasize description rather than evaluation. But, since the response alternatives are worded in terms of satisfaction-dissatisfaction or other alternatives which imply a favorable-unfavorable continuum, their answers may be considered as evaluative reactions. These reactions are based upon their perceptions of the campus milieu as they have experienced it. Scores pertaining to various aspects of the campus milieu do not represent a "group perception" or "group reaction," but rather represent a summary of individual perceptions and reactions.

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[3] In the questionnaire the direction of alternatives was alternated in random order (with the more favorable alternatives coming first for some items, and the less favorable alternatives coming first for other items) in order to avoid response sets in answering. Before scoring, items having higher numbers of the rating scale with unfavorable alternatives were reflected in scoring, so that the higher numbers on the scale (4, 5) always represent favorable reactions and the lower numbers (2, 1) represent unfavorable reactions. For consistency of meaning in reporting the data to consumers all items are printed with higher numbers for the more favorable alternatives, as in this report.

One of the clearest ways to examine student perceptions of specific aspects of the campus milieu is in the form of frequency distributions of answers. Frequency distributions, in percentages of students responding to each alternative, are shown below for our three demonstration items. The frequency distributions are shown for fall quarter and spring quarter, from a sample of 147 freshman men who had complete data both quarters.

Fall	Spring	
		How satisfied are you with the opportunities available for students to express their complaints or suggestions and have them listened to and taken account of?
9%	24%	(1) very dissatisfied
15%	18%	(2) slightly dissatisfied
38%	37%	(3) dissatisfied as much as satisfied
33%	16%	(4) fairly satisfied
5%	5%	(5) very satisfied
		To what extent does it seem like the college recognizes and is interested in the individual person?
14%	19%	(1) makes me feel like little more than a number
37%	38%	(2) rather little interest in the individual
34%	35%	(3) a moderate amount of interest in the individual
12%	7%	(4) quite a bit of interest in the individual
3%	1%	(5) there seems to be a great deal of interest in the individual
		How satisfied were you with the registration procedure?
37%	20%	(1) very dissatisfied
20%	16%	(2) slightly dissatisfied
18%	24%	(3) dissatisfied as much as satisfied
16%	31%	(4) fairly satisfied
9%	9%	(5) very satisfied

Frequency distributions of responses are readily understandable. They provide information about the distribution of reactions as well as about the central tendency. However it is also useful to have quantitative indexes for more concise summary and comparison.

Indexes summarizing student perceptions and reactions to each aspect of the campus milieu are calculated in the following manner. First the responses of all respondents are averaged for each aspect of the campus milieu (for each item). This average reaction (mean of all respondents) for a given aspect of the campus milieu is referred to as an Index of Satisfaction. Since 3.00 is the neutral point of the scale, a Satisfaction Index greater than 3.00 means there were more students who perceived this aspect of the campus milieu favorably (than there were with unfavorable reactions); a Satisfaction Index of less than 3.00 means there were more unfavorable reactions than favorable. Indexes of Satisfaction are illustrated for the three demonstration items below.

Fall	Spring	Change	
3.10	2.58	-.52	How satisfied are you with the opportunities available for students to express their complaints or suggestions and have them listened to and taken account of?
2.52	2.33	-.19	To what extent does it seem like the college recognizes and is interested in the individual person?
2.39	2.93	+.54	How satisfied were you with the registration procedure?

Indexes of Change, also shown above, are obtained by subtracting the fall Satisfaction Index from the spring Satisfaction Index. A negative sign indicates that perception of this aspect of the campus milieu was less favorable in the spring than in the fall, while a positive sign indicates that the reaction became more favorable from fall to spring. In more general use of the method change of satisfaction may be calculated for any time period, e.g., from one year to the next or from some baseline period.

Interpreting the data for the above three aspects of the campus milieu, it appears that perceived opportunities for communication with representatives of the administration were about neutral in the fall, but that more students came to experience such opportunities in a negative way by spring. From the frequency distribution (shown on an earlier page) we see that 24% of the students are "very dissatisfied" in this respect, which should be a matter of concern for an administration seriously interested in communicating with students. In the area of individual recognition, the Indexes of Satisfaction are well below the neutral point in the fall and spring. From the frequency distribution (shown previously), we find that the majority feel alienated--that there is little interest in the individual, with a sizable number feeling like little more than a number. Perhaps it is more difficult (than in other areas) to provide satisfying experiences for students in these areas in a large university. This suggests the need for normative data from a number of colleges and universities, which would provide the educational administrators of a given college or university a frame of reference with which to compare their own performance.

The above data shows that a high proportion of dissatisfaction with registration in the fall was reduced to a rather neutral collective reaction in the spring, i.e., the fall Satisfaction Index was quite negative, compared with a neutral Satisfaction Index in the spring. The improvement shown by the Index of Change parallels a change in registration intended to increase the efficiency of the process. It would seem that systematic feedback from the student viewpoint, such as this, would be useful to an administration in evaluating the effectiveness of its procedures.

As seen above, a useful evaluation of various aspects of the campus milieu may be made in terms of the absolute score (in relation to the neutral point of the scale) and by consideration of the change indexes. These indexes summarize the collective perceptions and reactions of the student body sampled. However, it is useful to supplement the summary statistics of these indexes by the frequency distributions. For example, even though the spring Index of Satisfaction for registration is about neutral, and improved considerably from fall, the frequency distribution shows that there are still 20% of the students who feel very dissatisfied about the registration procedure.

Comparison of the Satisfaction Indexes for various aspects of the campus milieu is one way of considering their relative effectiveness. However a convenient method has been developed for assessing the relative effectiveness of these different areas. First we average the Satisfaction Indexes for all aspects of the campus milieu. For the sample of 147 students used here, the mean of Satisfaction Indexes was 3.47 at the end of fall quarter and 3.34 in the spring.[4] These values (3.47 and 3.34) may be taken as indications of Generalized Reaction Toward Campus Milieu.[5] An Index of Relative Satisfaction is obtained by subtracting the Generalized Reaction (mean of all Satisfaction Indexes) from the Satisfaction Index for a given area. Indexes of Relative Satisfaction may be used for comparing the relative favorableness of specific aspects of the campus milieu with the Generalized Reaction, and thus with all other aspects of the campus milieu, i.e., these are reduced to a common denominator. A negative sign means less favorable reaction toward that aspect of the campus milieu (than the generalized reaction), while a positive sign means a more favorable reaction (toward this aspect than in general). A zero value means that reaction to this aspect of the campus milieu is about average, i.e., corresponds to the generalized reaction.

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[4] This is the mean of 37 of the 38 items referred to in Table 2 below. The item pertaining to noises and distractions in the dorm was not included in the calculation of the mean for fall or spring.

[5] It may be noted that these values are higher than the means cited on an earlier page for a composite of 13 items used as a measure of attitude toward the university. The difference in these two sets of values is due mainly to the fact that the values for Generalized Reactions above are based, also, upon items pertaining to social relations with peers and other areas which had higher satisfaction indexes than items pertaining more centrally to the institution.

An Index of Relative Change in Satisfaction is obtained by subtracting the spring Index of Relative Satisfaction from the fall Index of Relative Satisfaction. This indicates change in reaction toward this particular aspect of the campus milieu relative to change in Generalized Reaction. Of course Indexes of Relative Change in Satisfaction could be calculated for any time period, e.g., comparing a given year with the previous year or with some baseline period. Indexes of Relative Satisfaction and Indexes of Relative Change in Satisfaction are shown for the three sample items below.

Fall	Spring	Change	
- .37	- .76	- .39	How satisfied are you with the opportunities available for students to express their complaints or suggestions and have them listened to and taken account of?
- .95	-1.01	- .06	To what extent does it seem like the college recognizes and is interested in the individual person?
-1.08	- .41	+ .57	How satisfied were you with the registration procedure?

As indicated above, the fall value for Generalized Reaction (3.47) is well above the neutral point of the scale (3.00). While the Generalized Reaction in the spring (3.34) is somewhat lower than for fall, it is still on the positive side of neutral. This is the frame of reference we must use, then, in comparing the relative effectiveness of various aspects of the campus milieu. Compared to the campus milieu in general, student perception of the three aspects above are quite negative (the Indexes of Relative Satisfaction for the three demonstration items above). In Table 2, at the end of this report, the various indexes shown for these items may be examined in the context of 38 aspects of the campus milieu.

As indicated in footnote 5, the Indexes of Relative Satisfaction shown here are based upon Generalized Reaction, which included items pertaining to social relations and other areas that tended to have high Satisfaction Indexes. Values for Generalized Reaction could be calculated from only those items pertaining more centrally to the institution, and would result in a lower mean. Then the Indexes of Relative Satisfaction calculated for the aspects of the campus milieu represented by the demonstration items would be somewhat less negative. The important point is that this method provides a quantitative index for comparing the relative effectiveness of various aspects of the campus milieu. The interpretation of the relative effectiveness of a given aspect of the campus milieu depends upon the other aspects with which it is compared (as represented in the Generalized Reaction value used for calculating the Indexes of Relative Satisfaction).

Summary of method. Student perceptions of various aspects of the campus milieu are obtained by their responses to alternatives which form a five-point scale of satisfaction-dissatisfaction or favorable-unfavorable reaction with scores ranging from 1-5 and a neutral point of 3.00. Averaged student reaction to any aspect of the campus milieu provides a Satisfaction Index on this scale. The Satisfaction Index is interpreted in terms of its standing on this satisfaction-dissatisfaction continuum, using the neutral point as the main frame of reference. The Satisfaction Index indicates the most prevalent reaction. Further perspective may be gained by studying the frequency distribution to determine the complete pattern of reactions to a given aspect of the campus milieu.

Comparisons may be made from one time period to another, or from one segment of the college to another. When normative data are collected, this will provide still another frame of reference for administrators to use in assessing the effectiveness of various aspects of their college. However, a unique characteristic of this method is the meaning provided by the scores without reference to normative data. This includes Indexes of Relative Satisfaction which provide a quantitative comparison of the relative effectiveness of various aspects of the campus milieu.

Reliability. Reliability was calculated by correlating Satisfaction Indexes obtained from one sample of 73 students with Satisfaction Indexes from another sample of 74 students.[6] The correlation coefficients were .95 for fall quarter data and .97 for spring quarter data. Boosted to double size by the Spearman Brown formula the reliability coefficients for a sample of 147 subjects were .97 for fall and .98 for spring. Reliability was cross validated by correlating Satisfaction Indexes from this combined sample with another sample of approximately 100 students (sample size varied somewhat from fall to spring), yielding correlation coefficients of .94 for fall and .97 for spring. In short, reliability of student perceptions of the campus milieu is quite high when measured by the method described in this report. Although some individuals might have unique experiences and opinions for any given aspect of the campus milieu, the high reliability coefficients indicate that the prevailing student perceptions from a sample of this size yield conclusions quite similar to those obtained from other samplings of similar students.

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[6] More specifically, reliability was calculated by the following procedure. The sample of 147 students with complete fall and spring data (referred to above) were divided into two subsamples of 73 students and 74 students. Separately for each subsample a Satisfaction Index (mean over all subjects in the subsample) was calculated for each of 38 items. Then the 38 Satisfaction Indexes from one subsample were correlated with the 38 Satisfaction Indexes from the other subsample, i.e., the correlation was over 38 pairs of scores.

Selected Perceptions of the Campus Milieu as an Illustration of the Method

As a further illustration of the method reactions toward 38 aspects of college life are summarized for a sample of 147 freshman men in this section. The main information is provided by the data in two tables, which enable the reader to see the variation of student reactions to various aspects of their college experience. Those parts of the data discussed below were selected to serve as examples of the way the method may be used.

Table 1 shows frequency distributions of responses to 15 items, organized under the topics of Academic-Study, Administrative, Residence Hall, and Social. The frequency distributions, in relation to the complete wording of the items, is probably most useful for giving the reader a feel for the student reactions.

Table 2 shows the Indexes of Satisfaction and Relative Satisfaction for the 38 items used in preparation of this report. These items are organized under relevant categories and subcategories, and include items pertaining to various sources of worry and social-emotional adjustment. Although inclusion of several of these items might be stretching the concept of social milieu, it does seem useful to include such topics as happiness, homesickness, and general boredom in comparison with reactions to specific aspects of the campus milieu.

The various Satisfaction Indexes provide the most convenient method for comparing various aspects of the campus milieu, and for assessing change of student reaction from fall to spring. For purposes of comparison it should be noted that an Index of Relative Satisfaction, or the difference between two Satisfaction Indexes, of ± .20 would be statistically significant beyond the .05 level for most items. An Index of Change or Index of Relative Change in Satisfaction of ± .18 would be statistically significant beyond the .05 level.[7] However, for practical purposes we will consider mainly those differences that are considerably larger than these values.

Generalized reaction. The Generalized Reactions of 3.47 in the fall and 3.34 in the spring are to the positive side of neutral (3.00) on the favorable-unfavorable continuum. The generally positive reaction may be viewed with some satisfaction by those concerned with making the university what it is. However there is a full range of responses for all items. For a not untypical item, for example, with a Satisfaction Index close to the mean (Generalized Reaction), 25% of the students are dissatisfied (with the other 75% being satisfied or neutral). Some responses at the extremes of the scales may be accounted for by students with atypical experiences or with especially optimistic or pessimistic response tendencies, but have little effect upon the Satisfaction Index (which is a mean of all students and reflects the prevailing reaction). However for all items it is appropriate to look beyond the Satisfaction Index at the percentage of students who indicate much dissatisfaction.

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[7] Actually an Index of Satisfaction is the mean of subjects' scores on a particular item. An ordinary t-test may be used to compare differences of means when the respective standard errors are also calculated. The statements above about mean differences of ± .20 and ± .18 being significant beyond the .05 level is based upon those items with the larger standard errors. For a few items these values might not quite reach the .05 level, but for most items it would take an even smaller mean difference to reach this level.

In terms of change, it appears that the fall of arrival is followed by the spring of discontent. For 68% of those aspects of the campus milieu sampled (26 of 38 items) the prevailing student reaction showed decreased satisfaction. For 16 of these items the decrease in satisfaction was statistically significant (-.18 or greater), while only three items showed a significant increase in satisfaction (+.18 or greater). Overall, however, the magnitude of change is not great when comparing the Generalized Reaction of 3.34 in the spring with 3.47 in the fall. Whether this magnitude of change may be accounted for merely in terms of reduced novelty of the college experience for freshmen would have to be determined by comparison with other categories of students and from other colleges.

As may be seen in Table 1, responses to an item asking students, "On the whole are you getting out of college what you came for?" parallels the General Reaction values closely in fall and spring. This provides support for the procedure of calculating the mean of all items as an indication of generalized reaction, and using this as a basis for calculating Indexes of Relative Satisfaction.

What is probably more useful information about the campus milieu becomes apparent in turning from generalized reactions to student perceptions of specific aspects of the campus milieu. We turn first to the two broad areas most closely associated with the university as an institution, the academic and administrative aspects.

Academic. Data pertaining to academic aspects of the institution are shown on the first page of Table 2, while data under the topic of academic adjustment further over in the table is also relevant. The prevailing student perception is one of satisfaction with courses and academic requirements. This is in spite of numerous specific problems with courses cited in students' answers to open-end questions. So it appears that students are responding to these objective items in terms of realistic expectations rather than what they ideally would hope to find.

The academic area which is perceived least favorably is the system of counseling and advising (-.58 Index of Relative Satisfaction in the spring, with 20% "very dissatisfied"). As feedback for educational administrators, these student perceptions indicate that special attention needs to be given to the program of advising.

Enjoyment of courses fares less favorably (than satisfaction with courses and academic standards) when compared with generalized reactions (Indexes of Relative Satisfaction of -.36 in the fall and -.35 in the spring), while the percent of students bored with studies increases from fall to spring (-.45 Index of Change and -.32 Index of Relative Change). Other data from this research program indicates that the source of this lack of enjoyment and boredom with studies lies at least partly in the students' motivation. However it may also be a function of how some courses are taught and the assignment of courses. The important point for the present purpose is that these student reactions suggest that the interest generated by courses is an area which needs closer examination than some other areas.

Compared to their satisfaction with courses and the generalized reaction, students tend to express dissatisfaction with their own academic accomplishment (Indexes of Relative Satisfaction of -.54 and -.35). This is related to difficulty concentrating on studies and avoiding distractions (Relative Satisfaction Indexes of around -.35 fall and spring). In contrast to worry about other sources, there is considerable worry about studies and course work (Relative Satisfaction Indexes of -1.12 and -.84). These findings about students' difficulty in studying effectively are consistent with other data from the research program. In spite of dissatisfaction about their own achievement, it is interesting to see that almost all students maintain hope in the form of confidence about their ability to complete college.

In comparison with other sources of worry, many students worry about their career plans, as well as about their studies (Relative Satisfaction Indexes of -.73 and -.56). This suggests the need for more career planning and counseling resources to help students channel their talent more effectively. The need may be for more facilities, improved facilities, or more accessible facilities for career planning. The important point here is that the data indicates this as an area which needs closer scrutiny and planning.

Administrative. Student reactions were most negative to those aspects of the campus milieu in the realm of administration and personnel services.[8] Most consistently negative were perceptions of the university's lack of interest in the individual person. Related to this were increasingly negative perceptions of the opportunities available for students to communicate upwards and have their view taken into account. These are problems which often are associated with the vastness of a large university. From this data it appears that these are areas which need considerable attention from educational administrators. Problems may be inevitable, with improvement difficult to achieve. It should certainly provide useful perspective for educational administrators at a given institution to have norms of student reactions at other colleges and universities for comparison of what is, and what can be.

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[8] Administration of an educational institution encompasses far more areas than those referred to here. The areas included under administration here are aspects of the campus milieu associated with the administration from the student viewpoint, as determined from interviews with students and students' answers to open-end questions. Although counseling and advising is included under the academic category, this area too is associated with administration from the frame of reference of students. It is realized that these are not clearcut distinctions, for example the impression of impersonal treatment and alienation may be related to student-teacher relations as well as to student-administrator relations. The present categories are used merely as a convenience in organizing the data. It is the student perception of specific aspects of the campus milieu that is most relevant.

It is interesting that rules and regulations, the aspect of the campus milieu which receives the most negative publicity, is perceived less negatively than other aspects in the realm of administration and personnel services. This lends credence to the view that students are discerning in their responses to the items. Also consistent with this view is the fact that student perceptions of registration became less negative from fall to spring, paralleling an administrative procedure to increase the efficiency of registration, while their perceptions of other aspects of administrative functioning were becoming more negative.

Although more students expressed satisfaction with meals in the fall than dissatisfaction, this aspect of the campus milieu was perceived as somewhat less favorable than the generalized reaction (-.21 Index of Relative Satisfaction). Meals in the spring were perceived as less satisfying in the spring (-.58 or change of -.37). This may be attributed in part to the tradition found in college, military, and other institutions that it is appropriate to complain about meals. Also, the change may reflect disenchantment with the same meals served over and over. However, before this source of student dissatisfaction is dismissed with such explanations, the data may be taken as a sign that this is worth checking further. The usefulness of such data would be increased if baseline data were available from other time periods as a standard with which to compare the reactions of the current students. Reactions of students frequenting different cafeterias could also be compared.

Students tended to be satisfied with accommodations in the dorm and dormitory life fall and spring. However decreased satisfaction from this source comes with time, and as students achieve social adjustment with their neighbors and turn elsewhere for social satisfactions.

Although noises and distractions in the residence hall became less of a problem in the spring (than in the fall), the data indicate that this was a major problem both quarters. This finding agrees closely with data from observations, interviews, and answers to open-end questions.

Upperclass section advisors were perceived quite positively both quarters, although they were perceived somewhat less favorably in their role of keeping order than in other respects. This information, along with the finding of such prevelant noise and distraction in the dorm, suggests that the primary job accomplished by the section advisor was not in achieving a favorable study atmosphere. Yet the respect with which section advisors are perceived suggests that they could achieve student support in accomplishing this objective. These points also indicate the value of comparing student perceptions of many aspects of the campus milieu, rather than considering separate aspects in isolation.

Social-emotional adjustment. Students' perceptions of their peers tended to be quite positive, compared with other aspects of the campus milieu. However there was less satisfaction in the areas of dating and extracurricular activities, which tended to improve in the spring (paralleling a turning away from the dormitory as a source of social satisfaction). Items pertaining to happiness, homesickness, and depression do not pertain to specific aspects of the campus milieu, but are included as areas of importance in considering the total impact (upon the student) of the total college experience. Norms from other times and other colleges would be needed for interpretation in this sense. However in terms of absolute scores, it appears that the majority of students perceive the various aspects of their social-emotional adjustment as positive, while there are still a moderate number of students with adjustment problems.

Conclusion

Student perceptions of the campus milieu can be measured with high reliability by the method described in this report. This method provides systematic information about student reactions to specific aspects of the campus milieu, as well as students' general attitude toward the institution. Such an approach would seem useful for administrative feedback, not only to aid in crisis prevention, but to assess the relative effectiveness of various aspects of the campus milieu and new innovations. However this feedback will be useful only if reactions are obtained from a fairly representative cross section of the student body (or from known and specified categories of students).

NOTE: After Tables 1 and 2, a supplementary procedure is described--a procedure for obtaining some feel for and insight into student perceptions of the campus milieu, in the students' own words.

Table 1

A Sampling of Items with Frequency Distributions to Illustrate Students' Reactions to Various Aspects of the Campus Milieu

Fall	Spring	Academic-Study:
		How satisfied are you with the University academic requirements?
1%	5%	(1) very dissatisfied
11%	7%	(2) slightly dissatisfied
12%	20%	(3) dissatisfied as much as satisfied
50%	48%	(4) fairly satisfied
25%	19%	(5) very satisfied
		How satisfied have you been with most of your courses?
2%	2%	(1) very dissatisfied
9%	10%	(2) slightly dissatisfied
7%	21%	(3) dissatisfied as much as satisfied
63%	59%	(4) fairly satisfied
19%	8%	(5) very satisfied
		How much have you enjoyed your studies?
3%	3%	(1) found them rather distasteful
22%	26%	(2) haven't especially enjoyed them
42%	48%	(3) enjoyed them somewhat
26%	20%	(4) quite a bit
7%	3%	(5) very much, a source of much satisfaction to me
		How satisfied are you with the counseling and advising for freshmen?
9%	20%	(1) very dissatisfied
18%	18%	(2) slightly dissatisfied
23%	34%	(3) dissatisfied as much as satisfied
37%	21%	(4) fairly satisfied
13%	7%	(5) very satisfied
		How often are there noises and distractions in your section of the dorm which make studying difficult?
21%	12%	(1) almost all of the time
35%	26%	(2) quite often
17%	28%	(3) a moderate amount
26%	31%	(4) occasionally
1%	3%	(5) not at all

Administrative:

Fall	Spring	How satisfied are you with the campus rules and regulations (especially those affecting freshman men)?
11%	14%	(1) very dissatisfied
12%	19%	(2) slightly dissatisfied
16%	24%	(3) dissatisfied as much as satisfied
38%	33%	(4) fairly satisfied
23%	10%	(5) very satisfied
		To what extent does it seem like the college recognizes and is interested in the individual person?
14%	19%	(1) makes me feel like little more than a number
37%	38%	(2) rather little interest in the individual
34%	35%	(3) a moderate amount of interest in the individual
12%	7%	(4) quite a bit of interest in the individual
3%	1%	(5) there seems to be a great deal of interest in the individual
		How satisfied are you with the opportunities available for students to express their complaints or suggestions and have them listened to and taken account of ?
9%	24%	(1) very dissatisfied
15%	18%	(2) slightly dissatisfied
38%	37%	(3) dissatisfied as much as satisfied
33%	16%	(4) fairly satisfied
5%	5%	(5) very satisfied
		How satisfied were you with the registration procedure?
37%	20%	(1) very dissatisfied
20%	16%	(2) slightly dissatisfied
18%	24%	(3) dissatisfied as much as satisfied
16%	31%	(4) fairly satisfied
9%	9%	(5) very satisfied
		How satisfied have you been with meals?
11%	24%	(1) very dissatisfied
17%	23%	(2) slightly dissatisfied
19%	16%	(3) dissatisfied as much as satisfied
41%	28%	(4) fairly satisfied
12%	10%	(5) very satisfied

Residence Hall:

How satisfied and happy have you been with your living accomodations in the residence hall?

Fall	Spring	
5%	11%	(1) very dissatisfied
12%	16%	(2) slightly dissatisfied
14%	19%	(3) dissatisfied as much as satisfied
51%	44%	(4) fairly satisfied
18%	11%	(5) very satisfied

How satisfied are you with your section advisor?

Fall	Spring	
1%	2%	(1) very dissatisfied
2%	5%	(2) slightly dissatisfied
6%	9%	(3) dissatisfied as much as satisfied
18%	26%	(4) fairly satisfied
73%	58%	(5) very satisfied

Social:

How satisfied are you with the way most students behave at the University?

Fall	Spring	
1%	1%	(1) very dissatisfied
15%	10%	(2) slightly dissatisfied
24%	34%	(3) dissatisfied as much as satisfied
47%	48%	(4) fairly satisfied
12%	7%	(5) very satisfied

How much satisfaction have you gotten out of social and other extracurricular activities?

Fall	Spring	
21%	12%	(1) very little satisfaction from this source
15%	19%	(2) some satisfaction but not much
27%	30%	(3) a moderate amount of satisfaction
21%	21%	(4) quite a bit
16%	18%	(5) very much, they have provided a great deal of satisfaction for me

How satisfied are you with your dating situation and the opportunity to meet students of the opposite sex.

Fall	Spring	
21%	18%	(1) very dissatisfied
16%	14%	(2) slightly dissatisfied
19%	23%	(3) dissatisfied as much as satisfied
24%	20%	(4) fairly satisfied
20%	24%	(5) very satisfied

Table 2

Indexes of Satisfaction

Fall	Spring	Change	ASPECTS OF THE INSTITUTION
			Academic:
3.87	3.69	-.18	How satisfied are you with the University academic requirements?
+ .40	+ .35	-.05	
3.88	3.62	-.26	How satisfied have you been with most of your courses?
+ .41	+ .28	-.13	
3.11	2.99	-.12	How much have you enjoyed your studies?
- .36	- .35	+.01	
3.64	3.19	-.45	How often do you find yourself bored in class or with your studies?
+ .17	- .15	-.32	
3.28	2.76	-.52	How satisfied are you with the counseling and advising for freshmen?
- .19	- .58	-.39	
3.95	3.71	-.24	How satisfied are you with the library as a place to study?
+ .48	+ .37	-.11	

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[1] On the top row, for each item are fall Satisfaction Index, spring Satisfaction Index, and Index of Change In Satisfaction. The Satisfaction Index for each quarter is the average reaction or satisfaction (over all subjects) for that aspect of the campus milieu. Since 3.00 is the neutral point of the scale, a Satisfaction Index greater than 3.00 means there were more students who reacted favorably to that aspect of the campus milieu (than there were students who reacted negatively); a Satisfaction Index of less than 3.00 means there were more negative reactions than positive. The Index of Change is determined by subtracting the fall Satisfaction Index from the spring Satisfaction Index. A negative sign indicates that reaction in the spring was less favorable than in the fall, while a positive sign indicates that the reaction became more favorable from fall to spring.

On the second row, for each item, are Index of Relative Satisfaction for fall, Index of Relative Satisfaction for spring, and Index of Relative Change in Satisfaction. An Index of Relative Satisfaction is obtained by subtracting the Generalized Reaction (mean of all Satisfaction Indexes for a given time period) from the Satisfaction Index for a given aspect of the campus milieu. Indexes of Relative Satisfaction may be used for comparing the relative favorableness of specific aspects of the campus milieu with the Generalized Reaction, and thus with all other aspects of the campus milieu, i.e., these are reduced to a common

Fall	Spring	Change	**Administration:**
3.50	3.04	-.46	How satisfied are you with the campus rules and regulations (especially those affecting freshmen men)?
+ .03	-.30	-.33	
3.10	2.58	-.52	How satisfied are you with the opportunities available for students to express their complaints or suggestions and have them listened to and taken account of?
-.37	-.76	-.39	
2.52	2.33	-.19	To what extent does it seem like the college recognizes and is interested in the individual person?
-.95	-1.01	-.06	
2.39	2.93	+.54	How satisfied were you with the registration procedure?
-1.08	-.41	+.57	
			Residence Halls and Meals:
3.26	2.76	-.50	How satisfied have you been with meals?
-.21	-.58	-.37	
3.65	3.28	-.37	How satisfied and happy have you been with your living accomodations in the residence hall?
+ .18	-.06	-.24	
3.63	3.21	-.42	How much have you enjoyed dormitory life?
+ .16	-.13	-.29	
4.61	4.34	-.27	How satisfied are you with your section advisor (upperclassman in charge of your section of the dorm)?
1.14	1.00	-.14	
4.22	4.07	-.15	One of the most difficult aspects of a section advisor's job is that of keeping order and control without creating feelings of resentment in the students. How much control of the situation does your section advisor have?
+ .75	+ .73	-.02	
2.52	2.86	+.34	How often are there noises and distractions in your section of the dorm which make studying difficult?
-.95	-.48	+.47	

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1 Con't denominator. A negative sign means less favorable reaction toward that aspect of the campus milieu than the Generalized Reaction, while a positive sign means a more favorable reaction. The Index of Relative Change in Satisfaction is obtained by subtracting the spring Index of Relative Satisfaction from the fall Index of Relative Satisfaction. This indicates change in reaction toward this particular aspect of the campus milieu relative to change in Generalized Reaction.

GENERAL SATISFACTION WITH COLLEGE

Fall	Spring	Change	
3.61	3.34	-.27	On the whole are you getting out of college what you came here for?
+ .14	.00	-.14	

SOURCES OF WORRY

3.38	3.35	-.03	How much do you worry about your finances?
-.09	+ .01	+.10	
3.72	3.80	+.08	How much do you worry about conditions back home?
+ .25	+ .46	+.21	
2.74	2.78	+.04	How much do you worry about plans for your future career?
-.73	-.56	+.17	
2.35	2.50	+.15	How much do you worry about studies and course work?
-1.12	-.84	+.38	
3.50	3.67	+.17	How much do you worry about your social relationships with other fellows?
+ .03	+ .33	+.30	

ACADEMIC ADJUSTMENT

Feelings of Accomplishment and Competence:

2.93	2.99	+.06	How satisfied are you with your academic achievement so far in college?
-.54	-.35	+.19	
4.50	4.54	+.04	How confident are you of your ability to complete college?
1.03	1.20	+.17	

Ability to Concentrate on Studies:

3.14	2.95	-.19	How hard is it, usually, for you to concentrate on your studies?
-.33	-.39	-.06	
3.12	2.97	-.15	How much trouble have you had avoiding distractions?
-.35	-.37	-.02	
3.28	3.31	+.03	How much trouble have you had organizing and completing your studies?
-.19	-.03	+.16	

SOCIAL-EMOTIONAL ADJUSTMENT

Fall	Spring	Change	
			Reactions to Social Conditions:
2.95	3.16	+ .21	How much satisfaction have you gotten out of social and other extracurricular activities?
-.52	-.18	+ .34	
3.06	3.19	+ .13	How satisfied are you with your dating situation and the opportunity to meet girls?
-.41	-.15	+ .26	
3.54	3.50	-.04	How satisfied are you with the way most students behave at the University?
+ .07	+ .16	+ .09	
3.65	3.58	-.07	To what extent have you been able to meet others who share your interest and attitudes -- people with whom you have a great deal in common?
+.18	+.24	-.07	
3.79	3.74	-.05	How understanding and sympathetic have you found most of the students in the dorm?
+ .32	+ .40	+ .08	
4.01	3.94	-.07	One of the important aspects of college life is reflected in the students movement toward maturity and adult responsibility. How much do you feel that your social relationships are helping you in this area?
+ .54	+ .60	+ .06	
			Feelings of Involvement and Happiness in General:
3.35	3.14	-.21	How often have you been particularly excited or interested in something?
-.12	-.20	-.08	
3.88	3.49	-.39	How often were you bored?
+ .41	+ .15	-.26	
3.69	3.62	-.07	Taking all things together, how happy would you say you have been since coming to the University?
+ .22	+ .28	+ .06	
			Feelings of Homesickness and Depression:
4.25	4.42	+.17	Since coming to the University how much of the time have you felt homesick?
+ .78	1.08	+.30	
3.39	3.34	-.05	How often did you feel depressed or unhappy this quarter?
-.08	+ .00	+.08	

Supplementary Source of Information about Student Reactions to Various Aspects of the College

Student answers to open-end questions provide a useful supplement to data obtained from the method described above. Although this source of data is not in as objective a quantitative form nor as efficient, students' answers in their own words provide the educator with a feel for students' perceptions and opinions, and in some cases provide new ideas for solutions. The time-consuming aspect of content analysis can be reduced by taking a more limited but representative sample of student reactions (than with the more efficient method described above) and by having students respond to specified aspects of the campus milieu. In order to illustrate this, listed below are some brief quotes from students' answers to open-end questions about several aspects of the campus milieu (areas assessed by objective items described above).

The instructions to the students were relatively simple, asking them to write their observations and reactions about various aspects of the campus environment. Several aspects of the university's environment and functioning were then listed on the form, with space beneath each for the respondent's answer. (Further information about the procedure may be obtained by contacting the author.) The quotes for each area were selected to represent several positive reactions, several mixed reactions, and several negative reactions expressed by students with different viewpoints.

Flexibility of administration to meet student demands--of all answers approximately 60% were positive, 10% mixed, and 30% negative.

Positive:

In this area the administration is doing a better job, meeting more of the legitimate demands of the students.

Seem fairly flexible.

There is some flexibility.

I think the administration is very open minded and it is good at this time.

The administration does a good job of listening to students. They have changed many things including curfew for girls.

Fair.

Pretty good.

Has improved in the last year.

The administration has met these demands very well. They encourage student activities, government, and other programs which provide the students with sense of suitable responsibility. However the students at times are too demanding.

Mixed:

Many student demands are outrageous.

This is usually true--but there are some instances when the administration needs to give more.

Increasing--a few bombings will further flex them. [The only radical response.]

It's coming around, but the administration is so afraid to break tradition on something that it will only cost more money later.

Negative:

Administration should pay more attention to student demands.

The administration should get rid of all this red tape.

Needs to be more flexible.

Do not bend much.

Very stiff. Takes a long time.

Very inflexible.

Communication between administration and student body--of all answers approximately 20% were positive, 20% mixed, and 60% negative.

Positive:

Seems to be very good communication with administration.

Feel student government association has made strides in this. The student body is to blame for the lack of it (communication) due to their apathy toward SGA efforts.

Pretty good. Most everyone knows what's going on.

Fine.

Mixed:

Should work closer together.

Poor to fair--there is some in student government, but again little between the individual student and his government.

Negative:

Lacking because the administration does not seem to take an interest in students.

This is pretty poor since I don't feel that there is any real understanding between the two.

The communication between the student body and the administration is lacking because the administration listens only to what it wants to hear.

None in my opinion except mailing grades.

Very poor. They don't like to talk to you.

This is lacking.

What communication? The administration seems to be too concerned about other things.

Competence and effectiveness of advisors to students--of all answers approximately 20% were positive, 15% mixed, 65% negative.

Positive:

Have found advisors quite competent.

They seem to be interested in getting a student the right subjects and in talking with them about his measure.

I've had only one and he has been an asset but some profs have helped me more.

I think this [advising] helps many of the students who are uncertain about what courses to take.

Mixed:

Should be more personal though does help.

Advisors are generally competent though they may not be effective in their ability to understand the student.

Good when you get in your major courses.

Negative:

Terrible! Advisors in general are doing a very poor job and I have been misguided by them.

Usually do not know the information or are not interested in the students.

Advisors need to be more experienced in your particular school.

Competence is very poor on the part of my advisor. He doesn't know anything about my program and further more he doesn't seem to care.

Ineffective. The entire advisory system should be reorganized. More personal contact needed.

The advisers are very poorly prepared to advise anyone. They don't know requirements and most are not willing to take the time to find out.

A student should have more time with his advisor.

They seem indifferent or unable to understand my problems.

> I like my advisor very much as a person but she never offers help. I always have to go to her. I had to plan out my whole schedule and call her so I could pre-register.

Registration--of all answers approximately 20% were positive, 30% mixed, and 50% negative.

> Positive:
>
> Has improved.
>
> I think the system used last quarter with preregistration was very good.
>
> Pre-registration is a great idea and ends much confusion.
>
> Mixed:
>
> Much better now since computerization. I see no reason why cards can't be mailed and avoid having to come into the coliseum altogether.
>
> OK only problem is standing in line for several hours.
>
> As good as can be expected.
>
> As good as could be expected from such a large school. Dissatisfied with inability to have classes which one has preregistered for, so senseless to preregister.
>
> Getting better. Seems that it could all be done during preregistration with advisor.
>
> Negative:
>
> There are too many students in the coliseum at one time.
>
> Very poor. Registration ought to be handled before the quarter ends. The University ought to register students throughout the quarter.
>
> Registration is terrible. No one knows what to do or where to go or when they have finished. Some improvements should be made.
>
> Registration is one big mess. Something should be done to keep it smooth running. Too many people.
>
> It is very confused. It seems to be a mass of people who don't know where they are going. I feel it could be better organized.

Interpretation and conclusion. Positive and negative responses to all areas indicate the variety of experiences and perceptions of the student body concerning any given area. This corresponds to the frequency distributions of responses to the objective items (in Table 1). However the prevailing view corresponds to conclusions from the Satisfaction Indexes (of Table 2) in the areas of registration, advising, and communication between students and administration. This is especially interesting when it is considered that these answers to open-end questions were obtained from a cross section of students three years later. The positive prevailing reaction toward the administration's flexibility in meeting student demands reflects several administrative changes made within a few months prior to the collection of this data--liberalization of rules and regulations, increased cooperation between administration and student government in this endeavor, and relatively smooth outcome of a confrontation with a radical student group. As found in student responses to the objective items, these responses in the students' own words indicate that they are discerning in their feedback and give credit where credit is due (as they perceive it). It appears that this form of data is useful in providing further insight into the university's impact upon students, and perhaps even a few useful ideas. The answers concerning lack of communication, as much as anything else, support the need for a systematic approach for obtaining student perceptions of the campus milieu (along with the need for more personal contacts with students).

Appendix E

Pitfalls and Hints on Doing Action Research in Campus Communities

This report is intended as a set of suggestions and sort of checklist for various individuals (a) doing action research, (b) evaluating the effect of changes and new programs, and (c) implementing new programs which affect residents or individuals of the area in which the change is made, whether or not research or evaluation is involved. Originally the author was hesitant about writing such a report, when considering that there are others who are probably more knowledgeable about most of the areas referred to. However, he was prompted to go ahead after recognizing similar problems with experienced researchers and administrators involved with making or evaluating changes in field settings. For those with such experience, there may be little new here, but it may serve as a set of reminders to have these points written down (as it has and will have in the future for the author). For the less experienced researcher or administrator involved with changes in field settings, it is believed that some of the points below will contribute awareness of possible pitfalls and sources of inefficiency, with a few suggestions for avoiding them or overcoming them. Although this is written mainly from experience in carrying on action research in the university setting in which the current project was done, many of the same problems and solutions have been noticed by the author in two other university settings, a psychiatric hospital, and a military setting. It is expected, then, that some of the points below will have generality beyond campus communities.

Introduction--Problems in Current Research Program:

As an introduction some of the problems involved with carrying out the current research program (which consisted of several phases, a number of different studies, and a field experiment) will be described. These are not uncommon problems. They will be referred to in relation to the pitfalls and hints described in the remainder of the report.

The research included a series of field studies and a field experiment. For all of these, questionnaires had to be administered to students in dormitories on several occasions, with repeated measures needed on the same individuals. Although given university endorsement, participation was voluntary. A critical field experiment involved obtaining and processing measures on various variables during the fall quarter, selecting students according to certain criteria on those measures, then assigning them to two sections of the dorm designated for the experimental sections. Assignments to new rooms had to be made before the end of fall quarter, so that the actual moves could be made before the start of winter quarter. Moving students from all over the dorm to the two experimental sections also required locating the vacancies they would leave and assigning original residents from the experimental sections to the new vacancies. Measures could not be obtained until late in the fall quarter, because peer ratings (one of the crucial forms of measure) depended upon first quarter freshmen getting to know each other well enough to rate each other with some validity. This allowed little time for processing the data and making the assignments, which was a rather large logistical problem in itself.

The task was complicated by several problems, including the following. After the original grant for financial support was approved and go-ahead planned, there was a long delay in the red tape of "negotiating the contract." This reduced an expected three month preparation period (prior to the beginning of fall quarter) to one week. The delay reduced the alternatives for assembling relevant staff. Further, there was no existing training program or similar program of field research on the campus (at that time) from which to recruit trained personnel. So, the personnel assembled were working toward a too short deadline, with little training or experience. During this early, critical-timing phase of the research more staff members than originally planned were included (in an attempt to plug the inexperience gap). This in itself introduced inefficiency and additional administrative problems, at a time when all resources were needed for research endeavors. Further, some of the instruments (questionnaires, ratings) had to be developed or adapted for this project during this period, and computer program written and de-bugged.

Perhaps the most important thing is that "we made it" in spite of the complications. However this situation caused a slight but crucial delay in making reassignments of students, which strained relations between research staff and university administrative staff. It also took its toll of drained energy, demands on research staff, and personal time. This situation is described further in the sections below, and in Appendix J. With hindsight this almost impossible task could have been facilitated by some shortcuts and compromises, and some of the hints to be described below.

Suggestions for Avoiding Pitfalls and Overcoming Problems:

Much of the remainder of this report is in rambling form, with the intention, mainly, of providing hints for handling or avoiding certain kinds of problems. It is hoped that this limited treatment will be useful to some current or in-training researcher(s) or administrator(s) as a source of ideas or reminders. If readers believe a fuller treatment of these themes would be useful, the author would welcome such feedback as an invitation to develop this into a more complete and general form.

When timing is crucial. There are many projects which suffer from unplanned delays or last minute initiation of the project. Unlike the successful Apollo program, with all its resources, it is not possible to work out a careful and realistic time table with administrative resources to coordinate the parts. Many projects have ended up ineffective or far less effective than they could have been with more time. In the opinion of the author, the initial Headstart program is one of the most monumental examples. In some cases it would be better to scrap the project entirely, or do it only if demands for sufficient planning and organizing time are met. A flowchart of what is to be done when by whom (far more detailed than required in the time table requirements of granting agencies) can help in the planning, and in forecasting possible delays. Consultation from others, which is usually reserved for the content and methodological aspects of research projects, would be useful in considering these practical planning aspects.

Even with a detailed flowchart, it is a good rule of thumb to allow extra time for unforeseen problems and delays that almost inevitably show up. Special bottle necks which have wrecked or hampered projects much larger than ours include the following: (a) resources for typing and reproducing questionnaires, instructional material, etc., and getting other tangible jobs and materials done on time; (b) computer processing of data, which far more than half of the time is underestimated in terms of time required to write new programs, adapt and debug old programs, and even routine processing of data with established programs; (c) development of tests, questionnaires, instructional material, etc., and adequate editing and pretesting of it; (d) administrative arrangements, which sometimes fall through, or don't consider everything involved when the initial arrangements are made; (e) lack of appropriately trained staff, or failure to recognize and realistically evaluate their limitations and capacities; and (f) enough time and resources for writing reports and disseminating findings. These are areas which frequently cause traffic jams and delays, which must be given more detailed and careful planning than usually allocated, but which must also be given a fairly wide margin of error and delay in contingency planning.

Moving people and other changes. The field experiment of this project was concerned mainly with moving students from one room in the dorm to another. However the points considered here might be generalized to other situations where personnel are moved (e.g., change of office space) or other personnel changes made. It is relatively easy to specify in advance that certain moves are to be made. However the full impact is not felt by the people involved until the time approaches. One must remember that people dread to move (the move itself), even when it involves a move to more favorable circumstances or surroundings. In the case of the present project, students were informed by letter, in the context of other information, at the time of receiving their dorm assignment, that they may have a different room after the first quarter. At the time it was decided best not to call too much attention to this. However, when it came time for the moves some students did not remember this, and some of those who did remember were not prepared to accept a different room assignment with the move it involved. Although there were no major repercussions, there were many individuals who were unhappy and/or disgruntled about this, and this tended to reduce the previously good rapport and cooperation between the research staff and the students.

It would be better to make the conditions of move more clearcut. If the moves are to be on an individual voluntary basis it is better to get a definite commitment of willingness-unwillingness in advance. In some cases incentives may be needed. If so, this should be found out and specified. The research and administrative staff were not completely aware of all that was to be involved in making the room changes. This is frequently the case even in office moves. A detailed rehearsal and written plan would be useful, to the extent that details can be anticipated. Not only will this avoid frustrations later, but it will allow for anticipation and avoidance of problems and increases in efficiency.

Computer processing of data. As pointed out above, more than half the time there are delays and errors beyond those anticipated and allowed for. This must be given careful consideration when timing is crucial. Otherwise underestimates of total operating time and other costs, caused by these delays and errors, are a frequent problem. For the present project a new program was written to average peer ratings and to average items into category scores. Although the resulting program was probably better suited to the specific purpose and data, it was later found that the BMD Transgeneration Program probably would have done the job. Use of an existing program would have allowed more time for practice runs, and avoided delays in processing the data.

Even though a new program may be de-bugged with a limited set of data, other problems with a computer program sometimes appear when larger quantities of real data are processed on the computer. Therefore it is a useful idea to do extra and more extensive debugging and practice runs with a new or unfamiliar program if the timing is crucial; but if the timing is not crucial that extra preparation may be a waste of time. There are many instances where individuals, projects, and agencies have new computer programs written when there are existing programs which could do the job with a reduced saving of time, expense, headaches, and delays. Better means are needed for communicating about existing programs, in terms understandable and easily accessible to the layman. Alternative programs (including the same program available in a card deck or on a tape or disc in the computer storage) may be available for the same purpose. It has been our experience that more than 50% of the computer time can be saved by using one alternative rather than another, at least for certain kinds of analyses. A communication system about these alternatives would also be useful. But lacking this, it will often pay : the investigator (especially the computer-unsophisticated user) to inquire locally about existing programs and alternatives known by other users.

Finally, the unit record equipment for reproducing, sorting, interpreting, and collating cards causes delays. Computer center staffs are usually so concerned about more complex computerometry that insufficient attention is given to upkeep, use, and training in unit record equipment. Many tasks which would otherwise require greater time, expense, and delay can be handled by an assistant who can become knowledgeable about how to use unit record equipment effectively and submit available "canned" programs to the computer--this does not require much knowledge of computer hardware or programming.

Cooperation with administration. Individuals from other universities have remarked at the cooperation between administration and research staff in making the transfers needed for the room changes referred to above. However there have been problems as well. There are many demands on the administrator's time, and this may compete with his participation in the research endeavor or the new program being established. It is essential to obtain initial support before initiation of a project. But our project, and others, have been adversely affected by lack of follow-through. It is useful to plan from the beginning how the organization may be affected, what administrative arrangements must be made, etc., and allow for these in a written schedule. Otherwise the project may suffer from inadequate administrative activity; the administrator may find himself in a time bind, find repercussions from plans gone awry, or both.

Periodic feedback and coordination should be planned, so that it may be used if needed. Two problems in field settings with which the author is familiar illustrate major instances of lack of understanding or lack of coordination between administrative and research staffs. One is the school situation in which the researcher had laid careful plans for representative sampling of classrooms, and the principal substituted the best class rather than the class selected. The other example involves the military situation, where the colonel in charge chose to institute new training procedures in a company planned as a control group for an experiment participated in with a research team. In summary, it is useful to clarify details of operation throughout the project, as well as make the main decisions, from the beginning, and to establish what will be involved and regular feedback between relevant administrators and research or project staff.

Participation and cooperation of students. Too often students are used as research subjects without any consideration for the effects upon them or the impressions left with them. Among other things, their participation should warrant feedback about the outcome. Although this is typically promised in a routine fashion, it is unusual to find this followed through. This is partially due to other demands on the researcher's time. However, isn't this something that should be budgeted into his schedule? As it is many students become skeptical about participating in future projects and communicate this to others.

Public relations can be important in obtaining initial and continued participation. This was given emphasis in the present project, with explanations that student participation would provide data which should be useful for improving the campus milieu for future students. On the whole student reaction was positive, with more than 90% rate of return from the initial questionnaires. However there was a problem, barely averted, when some students associated this project with another project during the same time period, in which questionnaires had been administered with little explanation and students felt their intelligence was insulted by the manner of administration. This points out the need for greater consideration for the participants, attention to public relations, and coordination of various projects in which subjects might be asked to participate during the same time.

One problem of which this project was guilty was administering questionnaires that were too long and detailed for a single administration, and too close to exam time. This hurt the rate of return of later questionnaires, and reduced the original enthusiasm for the project of some subjects. Although this situation was difficult to avoid due to other circumstances (some referred to in the introduction above), it does point out the importance for advance planning, and allowing for unforeseen contingencies. This is a problem and need shared with many other projects with which the author is familiar--the last minute "crush" too often results in great pressure upon the researchers, the subjects, inadequate research, or inadequate reporting of research. When large amounts of participant time are needed, it is best to break it up and avoid too much at once. In some cases overlapping samples may be used, with some data obtained from one subsample, other data from another subsample, but some data common to both samples to determine their similarity. In some cases, some form of tangible or intangible incentive for participants is also useful or required.

It is hoped that the problems and hints pointed out above may be useful to other researcher(s) or administrator(s) making changes or collecting data in field settings. It is useful at least to the author to gather this limited set of ideas together as future reminders for himself and associates.

Appendix F

Responsibility and Academic Achievement

Non-intellective predictors have been intriguing to personality researchers and psychometrically oriented psychologists, and seem to be generating an increasing amount of research activity (even by organizations which have traditionally supplied the main verbal and quantative college aptitude tests). The idea seems to be that prediction of academic success with intellective measures has reached a ceiling, and investigators are attempting to tap other sources of variance by utilizing various measures of personality and motivation. Up to now the correlation of most of these personality variables with grades has been borderline. Usually the question, in considering the relevance of non-intellective predictors of grades, is whether the relationship is significantly different from zero, rather than whether the non-intellective predictor rivals the verbal and quantitative college aptitude tests in predicting grades. In most of the cases where substantial correlations have emerged between personality and grades, it turns out that the relationship is not replicated when tried with other samples.

Most of the personality variables used for predicting grades have been self-report measures, usually derived from various personality inventories. The more recent trend of using biographical data seems promising, but it usually involves multiple correlation utilizing a number of biographical items to sustain a substantial correlation with grades; and it is more usual to find empirically fortuitious variables than theoretically relevant variables.

Our own research has utilized peer ratings on a "Responsibility" factor rather than self-reports. These ratings are made on an empirically related set of behaviors and personality characteristics which theoretically should be related to academic success. Although this cluster of items has a moderate correlation with various indices of intelligence, it mainly reflects self-control, industriousness, and conscientiousness in getting a job done.

In a previous study at the University of Florida, with 80 transfer students, Responsibility was correlated .50 with grade point average (GPA). In that sample Responsibility predicted grades somewhat better than the intellective predictor (SCAT total) and boosted the multiple correlation with grades to .61, which is substantial for a sample with the variance reduced by not containing freshmen. The data from that study are given in Tables 1 and 2.

The results of the University of Florida study appeared promising, but it was important that the study be replicated in another setting with a larger sample. That is essentially what the present study was intended to accomplish.

Table 1

University of Florida Sample of 80 Transfer Students Correlations Between Responsibility and GPA, Fall and Spring

	Resp. Fall	Resp. Spring
GPA, Fall	.50	.51
GPA, Spring	.43	.49

Table 2

University of Florida Subsample of 54 Students with SCAT Scores Intercorrelations of Responsibility, GPA, and SCAT

	Resp.	SCAT	GPA
Responsibility		.07	.49
SCAT	.07		.40
GPA	.49	.40	

Method

Our non-intellective predictor is a personality variable, which has consistently emerged in factor analyses from four samples of college students at three universities. Each subject was rated by his roommate and by approximately 3-5 peers (other students living in near-by rooms of his dormitory). Peer ratings were obtained, on six-point graphic rating scales, on traits and behaviors such as "hardworking and industrious," "uses good judgment," "dependable," "efficient." For each subject mean peer ratings received on these items were averaged for his "Responsibility" score. This variable is described in more detail in a companion report.

For the present study yearly GPA was taken as the main criterion. In addition to Responsibility scores obtained in the fall quarter and in the spring quarter, other predictors were high school average (H.S. Av.) and college board verbal and math (quantitative)scores (CEEB-V, CEEB-M).

Results

Results are shown for a sample of 296 freshman men at the University of Georgia in Table 3.[1] Although fall Responsibility scores correlated only .37 with yearly GPA, Responsibility scores obtained in the spring correlated .52 with GPA. This predicted GPA better than either of the intellective predictors (r= .42 for CEEB-V, r= .36 for CEEB-M, and high school average r= .47). In multiple correlation with each of the intellective predictors Responsibility increased the prediction of GPA. Fall Responsibility combined, respectively, with HS. Average R= .55, with CEEB-V R= .52, with CEEB-M R= .49, in multiple correlations with the yearly GPA criterion. Spring Responsibility combined, respectively, with H.S. Average R= .63, CEEB-V R= .58, CEEB-M R= .58.

In a companion study of 103 women college students, similar procedures were followed for obtaining peer ratings in a residence hall. The results were similar to those for the men students. Although peer ratings were not obtained in the spring, fall peer ratings on Responsibility correlated .42 with yearly GPA. For this sample fall Responsibility predicted grades better than any of the intellective predictors. These statistics are shown in Table 4.

A separate analysis was done for a subsample of 60 freshman men who participated in a field experiment during the winter and spring quarters. Although there was nothing about the field experiment which should effect

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[1] The total sample consisted of 296 students. However some subjects were lacking data on some of the variables. For each correlation coefficient all subjects with scores on both variables (entering into that correlation) were included. Because of the missing data the actual sample size varied somewhat for the various correlations. The number of subjects with scores on each variable are shown in Table 1, varying from 244 for spring Responsibility to 281 for fall Responsibility.

Table 3

University of Georgia Sample of 296 Freshman Men
Intercorrelations of Predictor Variables and Criterion

	Responsibility Predictors		Intellective Predictors			Criterion	
	Fall Resp.	Spring Resp.	H.S. Av.	CEEB Verbal	CEEB Math	Yearly GPA	N
Fall Resp.		.49	.18	.16	.09	.37	281
Spring Resp.	.49		.23	.32	.21	.52	244
High School Av.	.18	.23		.24	.25	.46	279
CEEB - Verbal	.16	.32	.24		.42	.42	278
CEEB - Math	.09	.21	.25	.42		.36	278
Yearly GPA	.37	.52	.46	.42	.36		265

Table 4

University of Georgia Sample of 103 Women Students
Intercorrelations of Predictor Variables and Criterion

	Responsibility Predictor	Intellective Predictors			Criterion
	Fall Resp.	H.S. Av.	CEEB Verbal	CEEB Math	Yearly GPA
Fall Resp.		.31	.07	.20	.42
High School Av.	.31		.28	.41	.35
CEEB - Verbal	.07	.28		.68	.26
CEEB - Math	.20	.41	.68		.34
Yearly GPA	.42	.35	.26	.34	

the relationship between Responsibility and grades, these students were paid for the ratings and special efforts were made to impress upon them the importance of careful and objective rating. For this subsample spring Responsibility was correlated .67 with yearly GPA, and when a special rating-ranking procedure was used this correlation rose to .71. Here, as in the University of Florida study, the relationship was substantially higher when special efforts were made to motivate and train the raters and a more precise rating method was used, i.e., when special care was taken to increase the reliability and validity of the ratings. This emphasizes the usefulness of careful rating procedures. It also suggests that the "true" relationship between Responsibility and performance is higher than indicated by the other correlations reported above.

In another set of analyses, dropouts were compared with non-dropouts in terms of mean scores on Responsibility. Spring Responsibility scores of 53 dropouts, who remained for the full freshman year but failed to return to the university the following fall, were significantly lower than spring Responsibility scores of non-dropouts ($t=2.67$, $p<.01$). Fall Responsibility scores of 20 students who dropped out before the spring quarter were also lower than fall Responsibility scores of non-dropouts ($t=1.87, p<.10$).

Discussion

The question may be raised, "Do the Responsibility ratings simply reflect the students' knowledge of grades made by their peers?" This may be a contributing factor, but probably only a small one--certainly less a factor here than in studies in which the teacher who assigns the grades also does the rating of the students. The spring ratings in our study are made after students have obtained fall grades, which may be known by some of their peers.[2]

However, fall peer ratings are obtained prior to the assignment of any grades. Although fall Responsibility only predicts yearly GPA .37 for the University of Georgia freshman male sample, this is still a sizable correlation for a non-intellective predictor. For the University of Florida sample of transfer students fall Responsibility correlates .50 with first semester GPA, obtained more than a month after the ratings, and .43 with spring semester GPA. With the University of Georgia female sample fall Responsibility ratings correlate .42 with yearly GPA, predicting grades better than any of the intellective predictors.

Although students may become partially aware of their peers' grade potential during the fall quarter prior to the time of the ratings, this is usually in the form of fairly unreliable and spotty hearsay about test grades in individual courses. It seems more likely that the ratings of the raters are influenced mainly by the observed behavior of their peers. It must be remembered that they were rating several specific behaviors which make up the Responsibility category--along with and in the context of a variety of other behaviors and traits included on the rating form.

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[2] Spring ratings on Responsibility tend to predict yearly grades somewhat better than fall ratings on Responsibility. However, the better prediction from spring peer ratings can be accounted for largely in terms of the greater validity of spring ratings (than fall ratings) due to increased opportunity for raters to observe rates.

In summary, these considerations prompted by the question above do not change the interpretation of the results. It appears that responsible habits (as here defined) do contribute to effective academic performance.

It may be noticed that the correlations between intellective predictors and yearly GPA are lower in the samples of this study than for some of those reported in the literature. This may be explained by the fact that these were not unselected students. The University of Florida sample consisted of transfer students all upper-classmen. The University of Georgia sample of women contained about half freshmen and half upperclassmen, the upperclassmen having already gone through a selective procedure like the Florida transfer students, i.e., the less bright and less well motivated students have dropped out of college by that stage. For all samples the intellective predictors have been used for screening entrance into the University, thus truncating the distribution.

Although GPA has been criticized as a measure of college education, it does not seem unreasonable to expect the responsible student to learn the intangibles of a university education as well as the things that contribute to good grades. It has been pointed out that grades have only moderate to low correlations with success in latter life -- actually the size of the correlation depends upon which area of success is under consideration. One thing that responsibility and academic achievement have in common is hard work and ability to adapt to standards. More important, responsibility is considered an important characteristic for success outside of college. In short, the relationship between responsibility and effectiveness seems to have generality beyond the scope of college grades.

In this connection it is relevant to consider more about the Responsibility variable. Construct validity of Responsibility may be considered in several ways.

The Responsibility variable is further defined by behaviors which have loaded high on this factor in various factor analyses from several samples of college students. They include: hardworking and industrious; dependable, can be counted on; serious: efficient; use good judgment; mature; energetic. These are traits that are consistently correlated together. The term Responsibility is developed from the things they have in common-- one may think of intersecting points of an underlying characteristic which is manifested in all of these behaviors. Responsibility seems to be a motivational variable referring to a conscientious and systematic approach to work. For example Responsibility is correlated .40 with amount of time spent studying, but should not be thought of simply as work habits. Self-discipline, self-control, conscientiousness, or industriousness are alternative labels that might be used for this variable. However, considering correlations of this variable with some other variables, "Responsibility" seems to fit best.

This Responsibility is not self-centered, but may be considered as responsibility in a broader social sense, as reflected in substantial correlations between Responsibility items and consideration for the feelings of others, and negative correlations with tendency to disturb and bother others. Responsibility is correlated higher than any other peer rating or self-report variable with sociometric choices received from peers for coworker and leader roles, and has moderate correlations with choices for the role of confidant.

Variables from standardized and familiar personality inventories with which Responsibility has its highest correlations include the following: Conscientiousness (factor G) of Cattell's 16PF; Endurance of Edward's Personal Preference Schedule; Responsibility, and Socialization of the California Personality Inventory.

Responsibility is distinguished from other socially desirable characteristics by variables with which it has little or no correlation: personal-social adjustment, as reflected by happiness and lack of anxiety; social adeptness, as reflected by forceful, clever and witty behavior: warmth in interpersonal relations. Responsibility is not negatively related to these variables. This just means that some responsible people may score high on these other characteristics, while other responsible individuals may be average or low on these other variables.

Implications

The most obvious implication from this research concerns the utility of Responsibility as a predictor of academic achievement. For selecting students, at least in special cases, Responsibility may be more relevant than intellective predictors since it reflects the student's motivation and effort. These are characteristics more under the control of the student-- characteristics which should be amenable to training,verbal appeal, and other forms of influence.

For years our society has taught young people the axiom that, "You must work hard and industriously and be dependable, if you want to get ahead." However, this axiom has co-existed with contrasting principles such as, "It's not what you know, but who you know that counts." With this and other formulas for success bidding for attention, it is not surprising that there are wide individual differences in the extent to which students develop an industrious and responsible approach to their work. Because the reinforcements from our educational system are so remote in time, it is difficult for the student, and even for his teachers for that matter, to assess the relative merits of following one success formula rather than another. Our data may be interpreted to provide reinforcement for the hardworking and industrious college student--that the result is worth the effort.

Following the logic of the paragraph above, these findings also have implications for student personnel practices. It is not uncommon to counsel students about the importance of working hard and industriously. These findings may be used to support such advice and make it more plausible, even reporting to students the relationship between responsible behavior and success.

These findings also suggest the personnel administrative practice of arranging for responsible students to be in relevant positions to serve as models for other students, for example upper classmen selected to live in residence halls with freshmen, and as student-staff members.

There seems to be a growing realization of the need for college students to take more responsibility in governing their own lives, as well as to develop into responsible individuals. Yet administrators are reluctant to grant students a more responsible role, partly because of the irresponsible behavior of some students. Peer ratings on Responsibility may be a useful device for selecting students whom administrators are willing to trust, are esteemed by their peers, and can get a job done. In short, their responsible attributes may be used constructively if responsible individuals are given greater support in their endeavors to take responsibility.

Appendix G

Effects of Health Engendering College Students upon the Adjustment and Learning of their Roommates

Although little understood, peer influence appears to be a major factor affecting the learning and adjustment of college students, for better or worse. Residence halls, where college students spend the greatest portion of their time, appear to be one of the main settings where this influence occurs, especially for freshmen. This report describes a field study of one of these sources of peer influence--the effects of "health-engendering" college students upon the adjustment of their roommates.

This research is based upon an earlier research study conducted with transfer students in a men's residence hall (Alsobrook, 1962). The initial question involved the concept of a Health-Engendering Person (HEP), a person who typically engenders positive mental health in his associates through his informal interactions with them. "Positive mental health" is considered in a broad sense to include how effectively a person functions in his job and socially, as well as the other aspects of adjustment usually included under the concept of mental health. On the basis of theoretical considerations of health-engendering behavior a Health-Engendering Personality Rating Scale (HEP scale) was developed, and was confirmed as internally consistent by factor analysis. Behavior tendencies measured by this scale are consideration for others, warm interpersonal relations, and trust in others. An individual's score on the HEP scale is obtained by pooling (averaging) ratings received from several peers. In the original study construct validity was demonstrated by positive correlations of the HEP scale with sociometric choices for filling therapeutic roles, and with a measure of interpersonal perception reflecting esteem for others.

The greatest practical implication from the previous research was the finding that roommates of HEPs were more likely (than average) to improve in mental health and grades, while roommates of students with low (or health-depressing) scores were more likely (than average) to have lower adjustment and grades. In a later field experiment in a psychiatric hospital, patients assigned to a ward with high health-engendering aides improved more than patients on average wards, but only when there was an opportunity for informal social interaction between aides and patients (Alsobrook, 1967). Although the original study was with college students in a residence hall setting, the field experiment in the psychiatric hospital was with a quite specialized population. From these two studies it appears that health-engendering personality is generally useful for understanding informal interpersonal relations which facilitate positive adjustment and development.

Considering the theoretical relevance and the practical implications of the health-engendering variable for the positive development of college students, it was considered important to replicate the study in another university setting. That was the objective of the present study--

to analyze the effect of health-engendering college students upon the adjustment and grades of their roommates. The study was conducted during the first quarter of the freshmen year, a period which is especially important for the adjustment of students to college.

Method

Subjects:

Subjects were 276 freshmen, 138 pairs of roommates, living in a large men's residence hall during the fall quarter at a state university. From a total of approximately 500 students in the residence hall, the sample included most of the freshmen living in double rooms with other freshmen as roommates. (The sample excluded upperclassmen, freshmen living in single or triple rooms, and those freshmen in double rooms where either roommate had especially irregular data or did not participate in the first of two testing sessions.)

Roommate assignment was used as a moderator variable. Self-selected pairs of roommates may influence each other more than randomly assigned pairs of roommates. On the other hand we might find built-in or pre-existing correlations between self-selected pairs of roommates due to the selection process, i.e., we would expect self-selected pairs of roommates to be similar in social status, which could be represented as social desirability or reputation response bias in some of the measures used in this study. But there should be no built-in or pre-existing correlation between randomly assigned pairs of roommates. For this study pairs of roommates were subdivided into subsamples of 35 pairs who had been assigned as roommates on the basis of mutual choices, and 103 pairs who were randomly assigned to room with each other. There were 138 pairs in the combined sample. Ten pairs of roommates whose status was uncertain were excluded from the analyses.[1]

Procedure:

Scores on the HEP scale and 17 measures of adjustment were obtained for each subject. Grades were obtained from the registrar's office. Sources of adjustment measures included peer ratings, sociometric choices, and self-reports, all obtained from two questionnaire booklets administered during the seventh and eighth weeks of the fall quarter. Questionnaires were distributed by section advisors, juniors and seniors, each in charge of a section of approximately 50 students, at section meetings. Booklets were completed individually by students in their rooms, and returned in sealed envelopes to a locked mail box in the residence hall office.

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[1] Although designated as "randomly assigned pairs" for purposes of this study, these subjects were arbitrarily assigned as roommates by a secretary, using order of receipt of the housing preference form as the main criterion for assigning students as roommates. "Mutual choice pairs" were subjects who chose each other on the housing preference form. Most of the 103 randomly assigned subjects expressed no roommate preference, and in a few cases the students had expressed a roommate preference but it was not honored since the choice was not mutual.

Design and Analyses:

The analyses for this study were based upon the roommate pair. *The statistical model was to correlate the HEP score of one roommate with each of the 17 adjustment scores of the other roommate.* Within each roommate pair, the subject whose last name came first in the alphabet was designated as roommate A and the other member of the pair was designated roommate B. For all pairs of roommates the analyses were replicated--done once considering the effect of A upon B, and once considering the effect of B upon A. Considering the A subjects as influencers, their scores on the HEP scale were correlated with each of the 17 adjustment scores of their B roommates. Considering B subjects as influencers, their scores on the HEP scale were correlated with each of the 17 adjustment scores of their A roommates. Thus, for each set of analyses, the influencee's 17 adjustment scores were considered as dependent variables.[2]

Due to the fact that some subjects did not complete all forms or receive the requisite number of peer ratings, there were many subjects who did not have scores on all variables. The number of subjects having scores on various variables ranged from 215 for some variables to 275 for others. Included in each correlation were all pairs and only those pairs with scores on both variables.[3] This means that the sample size varied somewhat for various correlations. However there were a large core of subjects (approximately 70 percent) common to all the correlations. For the combined sample the least number of subjects included in any correlation were 206 and the greatest number 260.

Summary of design and analyses. Analyses were done separately for each of three subsamples: 35 mutual choice pairs, 103 randomly assigned pairs, the combined sample of 138 pairs. For each sample two sets of analyses were done--analyzed once by correlating the HEP scores of the A roommates with the 17 adjustment scores of their B roommates, and once by correlating the HEP scores of the B roommates with the 17 adjustment scores of the A roommate. These various analyses were done twice, once each for two alternative measures of the independent variable (to be described below).

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[2] In considering interpersonal influence, usually an influencer and an influencee are designated, the influencer being the higher status individual or in an influencer role. In examining dyadic peer relations there is little basis for designating one member of a pair as influencer and the other as influencee. Therefore this was an arbitrary distinction for the present study.

[3] If the influencer did not have a HEP score and/or the influencee did not have a score on the adjustment variable (included in that correlation with roommate's HEP),the pair was excluded from the correlation involving that pair of variables. It was believed that this procedure would bias the analyses less than limiting the analyses to only those subjects with complete data. For other purposes some of these analyses were replicated with a sample limited to those subjects with complete data; the pattern and magnitudes of correlation coefficients were quite similar to those reported below.

Sources and Instruments of Measurement:

In recent years it has become apparent that adjustment is far from unitary, and that there are many measurement problems in assessing different modes of adjustment and personality characteristics. Researchers who have examined this problem critically find that various self report measures of adjustment and personality tend to be highly intercorrelated. Social desirability is usually one of the main things they have in common. Ratings received from observers on various characteristics tend to be substantially intercorrelated, also, but have low correlations with self report measures. In short, there appears to be more variance due to the source, method, or instrument than to the mode of adjustment or personality in question. One way of separating these different content areas is by categories or scales based upon factor analysis. This approach was followed in the present study. Also, to further increase the generality of the assessment of adjustment, measures were obtained from several different sources, procedures, and instruments. These are described briefly below and in more detail in Appendix A. The 17 adjustment variables derived from these various instruments and sources were chosen to represent the three broad areas of social-emotional adjustment, academic adjustment, and attitudes toward the university.

Several instruments were combined into two booklets and administered on two occasions approximately a week apart. For all instruments written instructions emphasized confidentiality of answers. They instructed subjects to answer frankly and carefully, taking a descriptive (in contrast to evaluative) "set." Reports from student observers indicate that most of the students took the ratings seriously and followed the instructions. The first booklet contained a Comparative Adjustment Form, a Sociometric Questionnaire, and approximately half of the Personality Inventory items. The second booklet contained the remainder of the Personality Inventory items and the Descriptive Rating Forms. There were less subjects present for completing the second booklet than the first, so there were less subjects with self ratings, for example, than for comparative adjustment.

Descriptive Rating Form. This is a one page form of 23 items, on which the subject is instructed to describe the person whose name is written at the top of the form. Each item consists of a description of an interpersonal behavior tendency on a six-point graphic rating scale, with the points of the scale defined by frequency words. For example, the following two items:

CONSIDERATE OF THE FEELINGS OF OTHERS
— 6 —— 5 —— 4 —— 3 —— 2 —— 1 —
always usually often sometimes seldom never

GETS IMPATIENT OR ANNOYED WITH OTHERS
— 6 —— 5 —— 4 —— 3 —— 2 —— 1 —
always usually often sometimes seldom never

Each subject was assigned to rate (and to be rated by) his roommate and approximately five other peers living in nearby rooms of the residence hall, as well as to rate himself. On the basis of factor analyses three scales obtained from the items of the Descriptive Rating Form were utilized for this study.

Pooled (averaged) peer ratings on the HEP scale and roommate ratings on the HEP scale were used as alternative measures of the independent variable. (The HEP variables are described in more detail below.) Pooled peer ratings on Personal-Social Adjustment (happiness, lack of anxiety and shyness) and Social Adeptness (persuasive, clever conversationalist) categories were used as two measures of adjustment as perceived by others. Peer rating scores were included for only those subjects receiving ratings from three or more peers.

Self rating on Personal-Social Adjustment was used as one of the self report measures of adjustment. Self-esteem scores were obtained by averaging all 23 items in terms of favorableness (i.e., reversing scores of negative items before averaging them with scores on positive items).[4]

Personality Inventory--Reactions and Adjustment to Campus Environment Questionnaire. The Reactions and Adjustment to Campus Environment Questionnaire is similar in purpose to various personality inventories, and is referred to in this report as Personality Inventory. Instructions and item wording are designed to reduce self-consciousness in answering by focusing the subject's attention on effects of the campus environment; campus environment items are interspersed with adjustment items. Items are in the form of five-point itemized rating scales such as those illustrated below.

> How satisfied and happy have you been about finding new friendships since coming to college?
>
> (1) completely satisfied with new friendships
> (2) fairly well satisfied in this respect
> (3) moderately satisfied with new friendships
> (4) this has not worked out well for me
> (5) this is one of the things that has been very disappointing to me
>
> How do you usually feel when people around you start a bull session in which you are expected to participate?
>
> (1) fairly tense and anxious
> (2) somewhat ill at ease
> (3) neither ill at ease nor comfortable
> (4) fairly much at ease
> (5) very comfortable and at ease

Five aspects of social-emotional adjustment were measured by five factor analytically derived categories from the Personality Inventory: Social Adjustment, Compatability (with roommate), Happiness, Lack of Anxiety, and Lack of (psychomatic) Symptoms, composed of 12, 4, 5, 11, and 15 items respectively.

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[4] In other research (e.g., Bass & Fiedler, 1959) it has been shown that this measure of self-esteem is quite similar and highly correlated with the widely used measure of "self-satisfaction" (discrepancy between self rating and rating of ideal self).

Academic Adjustment in a 12-item category based on factor analysis of the Personality Inventory. It measures satisfaction with academic achievement, enjoyment of studies, and perceived ability to concentrate and avoid distractions.

Attitudes toward the Institution is a 13-item logically derived category from the Personality Inventory. It represents students' satisfaction with various institutional-administrative aspects of the university (e.g., rules, counseling and advising, meals, registration, concern shown for the individual). Also included was a one-item variable in this area, Satisfied with College; scores were answers on a five-point itemized rating scale to the question, "On the whole, are you getting out of college what you came here for?"

Comparative Adjustment Questionnaire. A ten-item questionnaire was included in the first booklet, asking students to indicate whether the various aspects of their adjustment were more satisfactory during their first quarter of college or the previous year back in high school. Items were in the form of five-point itemized rating scales such as the following.

> How have you found participation in social activities here at the University compared to the satisfaction you found from social activities back in high school? (Informal gatherings, conversations, extracurricular activities, etc.)
>
> (1) enjoyed social activities much more in high school than here
> (2) enjoyed social activities somewhat more in high school
> (3) about the same here and in high school
> (4) enjoy social activities somewhat more here
> (5) enjoy social activities much more here than in high school

In a sense scores on these variables provide a retroactive measure of change, and thus approximate the control from having pre-post measures of adjustment. Relative Social Adjustment is a three-item category consisting of the item above, and items asking about social success, and feeling accepted by others. Relative Academic Adjustment consists of two items asking about accomplishment in studies and enjoyment of studies at the university relative to enjoyment and accomplishment in studies back in high school. Relative Lack of Discouragement is a single item asking the extent to which subjects felt discouraged during the first quarter in college relative to discouragement felt back in high school.

Sociometric Questionnaire. On the Sociometric Questionnaire, included in the first booklet, each subject was asked to choose approximately three students on his floor of the dormitory for each of ten roles, e.g., friend, confidant, leader, co-worker. A Social Acceptance score was obtained by summing total number of sociometric choices received by the subject for all roles, as a general measure of acceptance by peers.

Grade-Point-Average. For all students fall grade-point-average (GPA) was obtained from the registrar's office as an objective measure of academic achievement or learning effectiveness during the first quarter at college.

Scoring of HEP and Adjustment Variables. For each personality and adjustment variable which involved more than one item, a subject's rating scale scores on the various items were given equal weight and averaged for the category score. The order of items (for various categories) was partially controlled for social desirability. The Descriptive Rating Form included some positively worded items and some negatively worded items. The Personality Inventory and Compatative Adjustment Form had some items on which the unfavorable end of the continuum had the high points of the scale (5 and 4), and on other items the favorable ends of the continuum had high scale points (5 and 4). All negative items had their rating scale scores reversed before combining them with positive items, so that a high score always refers to the favorable end of the continuum. The consistency of this scoring procedure is reflected in the wording of adjustment categories such as Lack of Anxiety, in which a high score represents freedom from anxiety and a low score represents maladjustment in this area.

Independent Variable--Measures of Health-Engendering Personality:

Health-Engendering Personality scales (HEP scales) are composed of factor analytically related items, interspersed among other items on the Descriptive Rating Form (described above). HEP items include the following characteristics.

Positively worded (health-engendering) characteristics:
  Considerate of the feelings of others
  Warm and close in his relations with others
  Tends to trust others and believe they will do their best
  Finds time to listen to others and help them when they need it
  Understands how others feel and what is important to them

Negatively worded (health-depressing) characteristics:
  Gets impatient or annoyed with others
  Belittles or down grades other people and their ideas
  Can't stand to be wrong, instead tends to blame others
  Disturbs, upsets, or bothers others

From these nine items two HEP scales were used. The five-item HEP scale consisted of the mean score from the five health-engendering items. For the nine-item HEP scale, scores on the four health-depressing items were reversed before averaging them with scores on the five health-engendering items. Two alternative measures of the independent variable (predictors of roommates' adjustment) were used for this study. One was mean rating received from all peers on the nine-item HEP scale. The other was rating received from roommate on the five-item HEP scale. In summary, there were two HEP scores for each subject--his health engendering behavior as perceived by all of the peers who rated him (the mean of their ratings of him), and his health engendering behavior as perceived by his roommate. The combined sample scores on these two alternative measures of health-engendering personality were correlated .59 with each other.

Dependent Variables--Measures of Adjustment:

The 17 measures of adjustment obtained from the instruments and sources described above were used as dependent variables (adjustment criteria to be predicted from roommates' HEP scores). Perspective of these 17 measures of adjustment may be obtained by referring to Table 1, where they are arranged under the broad dimensions of social-emotional adjustment, academic adjustment, and attitudes toward the university. Twelve of the 17 adjustment variables come under the heading of social-emotional adjustment, and these have been subdivided in Table 1 by sources and instruments of measurement.

Results

Briefly, there was a clear-cut and consistently replicated relationship between subjects' HEP scores and various aspects of their roommate's social-emotional adjustment. However subjects' HEP scores did not predict their roommates' academic adjustment and had a borderline relationship with their attitudes toward the university. To examine these results more closely it is necessary to clarify Tables 1 and 2.

For the results shown in Table 1, the predictor variable is the peer rating score on the nine-item HEP scale. For Table 2 the predictor variable is the roommate rating on the five-item HEP scale. For both tables the correlations refer to the HEP scores of the A roommates correlated with each of the 17 adjustment scores of the B roommates (in A→B columns) and the HEP scores of B subjects correlated with the 17 adjustment scores of A roommates (B→A columns). In other words, correlations in the A→B columns represent the influence of A upon B's adjustment, and the correlations in the B→A column represent the influence of B upon A's adjustment. At the bottom of each column there is indicated the range of subjects entering into the 17 correlation coefficients in the column.

Correlations for the 103 randomly assigned pairs are shown in the center two columns. To clarify, with an example, in Table 1 A's HEP score correlated .27 and .13, respectively, with B's scores on the first two adjustment variables. The two figures at the bottom of the column show that the greatest number of subjects included for any of these correlations was 101, and that there were 84 subjects included in the correlation with the smallest N. When we turn the direction of influence around and correlate B's health-engendering score with A's scores on the various measures of adjustment, we find correlations of .30 and .31 with the first two measures of adjustment; the greatest number of subjects for any of these correlations was 96 and the least number was 74.

Correlations for the 35 mutual choice pairs are organized the same way, and are shown in the two columns on the right of Tables 1 and 2.

For the combined sample of 138 pairs the analyses were done separately for the influence of A upon B and the influence of B upon A, as was done for the two sub-samples. However, the two correlation coefficients for each adjustment variable ($r_{A \to B}$ and $r_{B \to A}$) were averaged by converting r's to z's, averaging, and converting the mean z back to r. It is these mean r's and the number of subjects entering into both analyses which are shown in the left two columns of the tables. The mean correlation coefficients provide the best estimate, for the entire sample, of the relationship between one roommate's health-engendering score and the other roommate's adjustment scores.[5]

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[5] The significance levels shown for the combined sample are based upon the mean correlation coefficients and the total N from both analyses (the effect of A upon B, and the effect of B upon A). Since these two analyses correspond to a replication or cross validation, it may be more appropriate to consider the joint probability, based upon the separate probabilities of the relationships found in the separate analyses (A→B, B→A). These joint probabilities

The data appear conclusive in finding a positive relationship between health-engendering personality of college students and their roommates' social emotional adjustment. It appears that health-engendering students (students with high scores on the HEP scale) do engender positive mental health and personality development in their roommates, and that health-depressing students (students with low scores on the HEP scale) do depress the positive adjustment and development of their roommates. This study replicates the results from the original residence hall study (Alsobrook, 1962) concerning the effects of health-engendering college students upon the social-emotional adjustment of their roommates.

In the original study (Alsobrook, 1962) there was a significant relationship between students' HEP scores and the GPA of their roommates. However, in the present study, this relationship was essentially zero. The different samples used for these two studies suggests a tentative explanation for the difference in the findings regarding the effect of HEPs upon the academic adjustment of their roommates. The analyses in the original study concerned adjustment during the spring semester, after students had lived together for most of the academic year; students were all upper-classmen (transfer students) presumably more academically oriented than the first quarter freshmen used in the current study. Other data indicate that these freshmen are oriented more toward social activities than academic endeavors, especially during the fall quarter.

It may be further postulated that by spring students with health-engendering roommates gradually increase their scholarship orientation as their social-emotional adjustment becomes stabilized. For students with health-depressing roommates, in whom social-emotional adjustment continues as a major concern, continued lack of satisfaction in this area will keep them preoccupied so that scholarship suffers by default. Thus, after a longer period of time together, we would expect a positive relationship between health-engenderingness of roommate and scholarship. Although this was not tested directly in this study, we did find that dropouts have roommates who are significantly less health-engendering (than average) during the spring quarter. From data reported in Appendix K we find that dropouts are characterized by below average academic achievement. Indirectly, then, the attrition analysis confirms the expectation expressed above.

An important question concerns the extent to which we can infer causal relations from correlational analyses in a field study. The evidence from a field study cannot be as convincing as that from an experiment where there is greater control and manipulation of the independent variable. However, there are two elements of this study which lend support to considering the relationship as causal. Separate analyses for randomly assigned pairs of roommates fairly well precludes the possibility of a built-in relationship between one roommate's health-engendering personality and the other roommate's adjustment. Further confidence is gained by inclusion of two retrospective measures of change in social-emotional adjustment, Relative Social Adjustment and Relative Lack of Discouragement, which compare students' current adjustment with their adjustment back in high school. For mutual choice pairs, as well as for randomly assigned pairs, these measures correspond to pre-post measures, and represent change in adjustment apart from initial level of adjustment. Although further research is needed to establish this as a causal relation, these considerations further this interpretation. Also, the results of this study agree with the findings from the previous residence hall study (Alsobrook, 1962) and the field experiment in the psychiatric hospital (Alsobrook, 1967).

It is especially interesting to see that roommate ratings received on the HEP scale (Table 2) do as well or better than mean peer ratings received on the HEP scale (Table 1) in predicting roommates' social-emotional adjustment. This may seem surprising when it is considered that in other research the validity of peer ratings has been found to increase as a function of the number of raters. However, that finding holds mainly in situations where subjects have known each other for longer periods of time than the eight weeks time available before the peer ratings in this study. From the other research, in the fall quarter pooled peer ratings have greater validity than ratings by a single peer, but when that single peer knows the subject well (is his roommate) the validity approximates that of pooled peer ratings. In summary, after eight weeks of acquaintance pooled peer ratings are somewhat more valid than ratings by a single roommate; yet in this study we find that the roommate ratings on health-engendering personality predict roommates' adjustment somewhat better than do pooled peer ratings on this variable. The important point is probably this. When we are concerned with a person's effect upon his roommate it is more important to consider how he acts toward his roommate (and is thus perceived and rated by his roommate) than how he acts toward peers in general (and is perceived and rated by them).[9]

There tends to be a positive relationship between health-engendering personality and roommates' attitude toward the university. Students' attitudes toward the university are important to their general satisfaction in the environment. Indirectly these attitudes probably affect their performance as students and whether or not they will become dropouts. Students' attitudes toward the university also appear increasingly important to educational administrators concerned with crisis prevention, or with a genuine concern for students opinions. Since development of attitudes toward the university have received little investigation in the past, the influence of health-engendering roommates (and other associates with positive orientation) seems important for investigation in future research.

Although the correlational analyses were confined to fall data, the attrition analyses utilized spring (as well as fall) HEP scores of dropouts' roommates, with spring (and fall) HEP scores of the freshman doubles sample used for comparison. From the attrition analysis the following picture emerges. Dropouts (subjects who eventually became dropouts) started off the fall quarter with roommates who were somewhat less health-engendering (more health-depressing) than average. When they changed roommates they ended up with roommates who were significantly more health-depressing than their original roommates. Although dropouts who kept the same roommate all year had roommates who were perceived by their peers as somewhat more health-engendering than average in the fall quarter, their roommates' HEP scores became significantly lower from fall to spring. Considering all dropouts together, they ended up the year with roommates who were significantly less health-engendering (more health-depressing) than average, and who became significantly more health-depressing during the year. If we consider this as a causal relation, it appears that health-engendering people do effect their roommates in such a way that they are more likely to remain in college, while health-depressing students influence their roommates to become dropouts. This replicates a finding of the previous study of dormitory roommates (Alsobrook, 1962).

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[9] Here we are referring to the effect of A upon B and using the roommate rating of A on HEP as the predictor of B's adjustment. It has been referred to as rating received from roommate. But it was the influencee, B, who made the rating. The rating is of A as perceived by B, which presumably reflects how A acts toward B. We have exactly the opposite case when we are considering the effect of B upon A, i.e., the HEP score received by B was made by A (i.e., reflects the influencee's perception of the influencer).

To summarize the data, Health-Engendering Persons (as here defined) do engender positive mental health in their freshmen roommates during that important first quarter of college. They facilitate several aspects of their roommates' social-emotional adjustment, reduce the chances of their becoming dropouts, probably contribute to positive attitudes toward the university, but have little influence upon their academic achievement.

In order to understand these results better it should be useful to consider the process by which this influence occurs. A Health-Engendering Person is characterized by consideration for others, trust and positive expectation in others, and warm interpersonal relations. One would expect direct consequences of these behavior tendencies (for his roommate) to include happiness, compatibility in the roommate relationship, positive self concept, freedom from tension and anxiety, and opportunity to practice effective social skills. We would expect these positive expectations and social skills to transfer to other social situations, leading to social acceptance and success in social relations.

Any positive effect that a HEP would have upon his roommates' scholarship would be indirect in the sense of freeing him from worries in the social-emotional area. Due to his consideration for others a Health-Engendering Person would provide a quiet study atmosphere for his roommate and encourage him to study, if the roommate showed a desire and interest in scholarship. However, Health-Engendering People are not especially oriented toward scholarship themselves (the intrapersonal correlation between own HEP score and GPA tends to be zero). Therefore, we would not expect the relationship between Health-Engendering Personality and roommate's academic achievement to be large, unless other conditions were included to increase scholarship motivation. Expressing this in a more positive way, we would expect Health-Engendering Personality to have the greatest impact upon the development of college students when used in conjunction with some process to increase scholarship motivation.

Appendix H

Roomate Compatibility as Related to Adjustment and Learning

Compatibility with one's roommate is considered important by most college students. Since the roommate is one of the most pervasive sources of influence for the college student, it seems that compatibility should be one of the main factors contributing to satisfaction and happiness at college. It is also implicitly assumed, by many college students and student personnel workers, that compatibility is related to adjustment and academic performance. The main objective of this research study is to test this assumption -- to measure the relationship between roommate compatibility and the adjustment and academic achievement of college students.

Although most people believe they know what "compatibility" means, and proably have a fairly common meaning, there is no well defined and widely accepted definition of compatibility in the research literature. In fact there is relatively little research on the topic. In a fairly extensive search of the literature, Tillem was able to find relatively few studies on this topic -- most of these under the topices of compatibility of marital partners, and compatibility of roommate pairs (Tillem, 1968). Most of these studies refer to antecedents or conditions which contribute to compatibility, rather than the effects of compatibility upon adjustment or learning. Most of the literature relevant to this topic comes under the headings of "group cohesiveness," and "interpersonal attraction," on which there is substantial research literature. This literature has been summarized in relation to compatibility by Tillem (1968), so will be refered to only briefly below.

Extensive reviews of group cohesiveness have been made by Cartwright and Zander (1960, 1968), and an extensive review of interpersonal attraction by Lott and Lott (1965). Group cohesiveness has been defined as all of the forces acting on individuals to remain in the group, but more recently has been dealt with more in terms of the group members attraction to the group. Sometimes group cohesiveness has been measured by counting the number of "we" or other group statements, but usually by questionnaire responses by which members indicate their liking of the group, favorableness of their rating of individual group members, or sociometric choices for group members. Interpersonal attraction has usually been measured in similar ways -- questionnaire responses indicating liking of individual(s), favorableness of rating of individual(s), sociometric choice or preference for individual(s). It is not unusual to find various measures of group cohesiveness and of interpersonal attraction having only low correlations with each other, and often the operations of measurement do not correspond very closely with the conceptual definitions.

Group cohesiveness and compatability may be considered under the concept of interpersonal attraction. However, cohesiveness and compatability seem relevant as semi-independent concepts, not wholly subsumed under the topic of interpersonal attraction. Group cohesiveness has usually referred to a definite group with a common goal or set of institutions, usually of more than two members, which endurs over a period of time. Interpersonal attraction refers mainly to liking between two individuals, whether members of the same group or not, and in the research has been dealt with in terms of initial liking and whether dyads continue to be attracted to each other. Compatibility includes liking, but deals with dyads in which pairs of individuals are thought of as belonging together in a semi-formal ongoing relationship, and refers to how harmoniously they get along and how satisfied they are with each other while in this relationship.

In the present study measures similar to those in group cohesiveness and interpersonal attraction research are utilized to measure compatibility (liking for partner, rating of partner, choice for partner) but in an ongoing relationship. Since there is some question about the relationship of various methods of measuring attraction (whether under the topics of group cohesiveness, interpersonal attraction, or compatibility), one of the objectives of this study is to compare the relationship among several alternative measures of compatibility similar to those reported in the literature for measuring cohesiveness and interpersonal attraction.

Apart from controversy about measurement problems, the research on group cohesiveness has been concerned mainly with the consequences of cohesiveness, i.e., the effect of group cohesiveness upon productivity or group performance. Although some investigators have found a positive relationship between group cohesiveness and performance, other studies have shown no relationship or a negative relationship. These conflicting results have been reconciled by the generalization that cohesiveness tends to be positively related to performance of the group's own goals, but that often the main goals of the group do not include productivity as considered by management or the researcher. There have been very few studies dealing with the effects of group cohesiveness, interpersonal attraction, or compatibility upon the adjustment of group members. The main goal of the present study is to measure the effects of roommate compatibility upon the academic performance and adjustment of college students.

The research on interpersonal attraction has been concerned mainly with the antecedents of attraction (rather than the effects of attraction), and has centered upon two hypotheses or principles. The "similarity hypothesis" postulates that attraction to another person is based upon real or perceived characteristics which they have in common. The "complementarity hypothesis" postulates that attraction between individuals occurs when they have opposite needs which supplement each other. Although there has been mixed support for the complementarity hypothesis, most of the research on interpersonal attraction has been concerned with the similarity hypothesis, which has been frequently supported by findings of interpersonal attraction related to similar attitudes, beliefs, etc. The data supporting the similarity hypothesis is less conclusive when personality characteristics are used as a basis for similarity. A third objective of the present research is to test the similarity hypothesis in roommate pairs who differ in initial interpersonal attraction.

Method

Subjects:

Subjects were 276 freshmen, 138 pairs of roommates, living in a large men's residence hall during the fall quarter at a state university. This sample was divided into two sub-samples -- 35 mutual choice pairs, and 103 randomly assigned pairs of roommates.[1]

Procedure:

Questionnaire booklets were distributed by section advisors (juniors and seniors each in charge of a section of approximately 50 students) at section meetings of the dorm. Booklets were completed individually by students in their rooms, and returned in sealed envelopes to a locked mailbox in the residence hall office. Participation was voluntary. Approximately 90 percent of the students completed the first booklet, and approximately 85 percent completed the second booklet. Various questionnaires and rating forms included in these two booklets are described below.

Instruments:

The instruments included in this study are described in more detail in Appendix A, Appendix G, and in the dissertation by Tillem (1968). In those sources satisfactory reliability and validity are shown for the various variables. The instruments and variables derived from them are described briefly below.

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[1] Although designated as "randomly assigned pairs" for purposes of this study, these subjects were arbitrarily assigned as roommates by a secretary, using order of receipt of the housing preference form as the main criterion for assigning students as roommates. "Mutual choice pairs" were subjects who chose each other on the housing preference form. Most of the 206 randomly assigned subjects indicated no roommate preference, and in a few cases the students had expressed a roommate preference but it was not honored since the choice was not mutual. Some subjects had missing data on some of the variables. For each analysis comparing means, all subjects with scores on a given variable were included for the analysis of that variable. For each analysis involving correlation, we included all pairs and only those pairs with scores on both variables (entering into that correlation). In other words, the largest subset of subjects possible was used for each analysis. The number of subjects having scores on various variables ranged from 215 for some variables to 275 for others for the total sample. Although the sample size varied somewhat for various analyses, there were a large core of subjects (approximately 70 percent) common to all the analyses. The actual number of subjects entering into each analysis are indicated in the relevant tables of the results.

Descriptive Rating Form. This is a one page form of twenty-three items, on which the subject is instructed to describe the person whose name is written at the top of the form. Each item consists of a description of an interpersonal behavior tendency on a six-point graphic rating scale. Each subject was assigned to rate (and to be rated by) his roommate and approximately five other peers living in nearby rooms of the dorm, as well as to rate himself. On the basis of factor analyses four scales obtained from the items of the Descriptive Rating Form were utilized for this study -- Health-Engendering Personality (HEP), Responsibility, Personal-Social Adjustment, and Social Adeptness. Roommate ratings on the HEP scale and the Responsibility scale were used as measures of compatibility (to be described below). Peer ratings (mean peer ratings received from several peers, not including the roommate) on the Adjustment and Socially Adept scales were used as measures of adjustment. Self ratings on the Adjustment category and a Self-Esteem scale (mean of all items scored so that a high score means positive self-esteem and a low score means negative self-esteem) were considered as personality characteristics for one analysis.

Sociometric Questionnaire. On the sociometric questionnaire each respondent was asked to choose approximately three students on his floor of the dormitory for each of ten roles. Total number of choices received for the roles of leader, confidant, and entertainer were used as personality characteristics for one of the analyses. Choice received from roommate for the role of confidant was used as a measure of compatibility (to be described below).

Personality Inventory -- Reactions and Adjustment to Campus Environment Questionnaire. This instrument is similar to personality inventories, but each item is in the form of a five-point itemized rating scale. Self report answers on several factor analytically derived categories of adjustment were used for this study --Social Adjustment, Lack of Anxiety, Lack of Worry, Lack of Symptoms, Happiness, Academic Adjustment, and Attitudes toward the University. Four items pertaining to roommate compatibility are described below.

Comparative Adjustment Questionnaire. A ten item questionnaire asked students to indicate whether various aspects of their adjustment were more satisfactory during their first quarter of college or during the previous year back in high school. Items were in the form of five-point itemized rating scales with "about the same here and in high school" as the neutral point. A three item category of Relative Social Adjustment and a two item category of Relative Academic Adjustment were used for this study. In a sense, scores on these variables provide a retroactive measure of change, and thus approximate the control from having pre-post measures of adjustment.

Grade-point-average (GPA). Students' fall grade-point-averages (GPA) were obtained from the registrar's office, and used as objective measures of academic achievement or learning effectiveness during the first quarter of college.

Adjustment and Personality Variables:

Each of the adjustment and personality variables utilized in this study were mentioned above in connection with the instruments from which they were derived. They are listed in the tables of results below, organized under superorinate categories of Social-Emotional Adjustment, Academic Achievement, and Attitudes toward the University, with source and instrument from which they were derived also indicated. All adjustment variables were scores on categories composed of several items. Where necessary scores of items were reversed before being combined with other items, so that in all cases a high score represents the positive end of the continuum and a low score the negative end of the continuum.

Measures of Roommate Compatibility:

Self Report of Social Compatibility. Three items from the personality inventory asked the subject: How satisfied have you been with your roommate? How compatible are you socially and intellectually? How compatible are you in your daily contacts as roommates? Each item was in the form of a five-point itemized rating scale with alternatives varying from "unusually compatible" or "very satisfied" at the positive end of the continuum to "very incompatible" or "very dissatisfied" at the negative end of the continuum. For each subject the mean of these items (and a fourth item to be described below) was taken as the measure of Social Compatibility.[2] Internal consistency reliability for Social Compatibility was calculated by taking the median intercorrelation among the compatibility items and adjusting it by using the Spearman-Brown formula, resulting in a reliability coefficient of .78.

Self Report of Study Compatibility. For each subject Study Compatibility was measured by his score answering the question, How compatible are you and your roommate as study companions? Answers were on a five-point itemized rating scale with alternatives ranging from "unusually compatible" to "very incompatible."

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[2] Actually the study compatibility item loaded on the same factor as the three social compatibility items when all items of the personality inventory were factor analyzed, so originally this item was included as a fourth item in a "roommate compatibility" category. However, this item had lower correlations with the other three items than they had with each other, and also represented a different content area of compatibility. For this reason subjects' self report scores on this item were used as a separate Study Compatibility variable. For this study the roommate compatibility category of four items is referred to as Social Compatibility, reflecting the content and empirical relations of three of the four items comprising the category. When interpreting the correlations to be reported below, especially those among compatibility variables in Table 1, it should be recognized that there is an artifactual relation between the self-report Study Compatibility and Social Compatibility variables, (since the Study Compatibility item is one of the four items included in the Social Compatibility category).

Roommate rating of HEP. Each subject's rating of his roommate on the Helath-Engendering-Personality scale (HEP scale) was included as a third measure of compatibility. The score was the mean of five items of the Descriptive Rating Form, reflecting consideration for others, warm interpersonal relations, and trust of others, and reversed scores on four items pertaining to health-depressing behavior.

Roommate rating of Responsibility. This variable is the mean of subject's rating of his roommate on items of the Responsibility category of the Descriptive Rating Form -- characteristics such as dependable, efficient, hard working and industrious, uses good judgement.

These two variables represent a combination of subject's liking for his roommate and his perception of the extent to which his roommate displays health-engendering and responsible behaviors in the roommate situation.[3]

Choice of roommate as Confidant. The Confidant category consists of two sociometric questions: Who makes you feel comfortable and at ease, with whom you can express yourself openly? Whom would you choose if you had a personal problem you needed to discuss with someone? Subjects were instructed to choose three people from their floor of the dorm for each question. A subject may have chosen his roommate for both of these questions, one question, or none, so compatibility scores on this variable could range from 0-2, representing choice(s)for roommate in the role of Confidant. The restricted variance on this variable, compared with the other four roommate compatibility variables, may have contributed to reducing the relationship of this variable with other variables.

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[3] Ratings of a peer usually reflect tendency to evaluate the ratee (how favorably he is preceived, how much he is liked), as well as the rater's perceptions of the ratee's characteristics on the traits involved. Tendency to evaluate the roommate, and feelings of liking for him, are common in subject's ratings of their roommates on HEP and Responsibility. But the different characteristics being rated also contribute to the variance. These two measures reflect a combination of subject's liking for his roommate and the extent to which he perceives his roommate's behavior as health-engendering and responsible, respectively. It should be noted that roommate ratings on HEP and Responsibility are only moderately correlated with peer ratings on HEP and Responsibility. The important point here is that these measures of roommate compatibility reflect mainly how subjects perceive their roommates in the roommate situation, apart from their roommates' behavior when with other peers.

Results

The results are described below in four sections, each section pertaining to one of the objectives of this research.

Relationships Among Measures of Compatibility and Interpersonal Attraction:

The five compatibility variables used in this study are similar to measures of interpersonal attraction and group cohesiveness used in research under those topics. A critical analysis of the literature in those areas indicates that the measures of a construct often fail to correspond very closely to the construct they are intended to measure, and that various measures supposed to measure the same construct often have little empirical relationship with each other. One reason for the low relationship among various measures of the same construct is due to the response sets and other factors associated with a particular measuring instrument or source, e.g., self report measures on a given characteristic often correlate higher with self report measures of a different characteristic than with observer ratings of the same characteristic. It was for this reason that three different instruments or forms of measurement were used for the five compatibility measures in this study. One objective of the research, then, was to determine the relationship among these measures of compatibility in an ongoing roommate relationship.

For this analysis subjects' scores on the five measures of roommate compatibility were intercorrelated. These intercorrelations were done separately for randomly assigned subjects and mutual choice subjects. The intercorrelation matrices are shown in Table 1, for each of the two subsamples.[4]

The five compatibility variables were substantially intercorelated, with the magnitude and pattern of correlations quite similar for randomly assigned subjects and mutual choice subjects. For randomly assigned subjects correlation coefficients ranged from .73 to .15, with a median correlation of .44; for mutual choice subjects correlation coefficients ranged from .73 to .27, with a median correlation of .47. All correlations except one reached the .05 level of statistical significance, and the majority of them were statistically significant beyond the .01 level.

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[4] For these analyses the individual subject was used as the unit of analyses (rather than the roommate pair). Maximum possible N for randomly assigned subjects was 206, and the maximum possible N for mutual choice subjects was 70. Since some subjects were missing part of the data, the actual N for each compatibility variable is shown in the bottom row of Table 1. The number of subjects entering into each correlation coefficient may be projected from these figures for each pair of variables.

Table 1

Relationships Among Compatibility Variables

	Randomly Assigned Subjects					Mutual Choice Subjects				
	Self Report		Roommate Rating		Roommate Choice	Self Report		Roommate Rating		Roommate Choice
	Social Comp.	Stud. Comp.	HEP	Resp.	Confidant	Social Comp.	Stud. Comp.	HEP	Resp.	Confidant
Self Report Compatibility										
Social Compatibility		.73	.61	.56	.38		.73	.51	.47	.57
Study Compatibility	.73		.42	.46	.15	.73		.27	.35	.38
Roommate Rating										
HEP	.61	.42		.68	.36	.51	.27		.72	.46
Responsibility	.56	.46	.68		.30	.47	.35	.72		.31
Choice of Roommate										
Confidant	.38	.15	.36	.30		.57	.38	.46	.31	
Mean	3.65	3.32	4.36	4.47	.55	4.15	3.74	4.31	4.62	1.34
Variance	.89	1.42	.76	.58	.69	.52	1.18	.79	.71	1.30
N	204	205	187	187	186	70	69	66	66	64

Note.--All correlation coefficients except one reached significance at the .05 level, and the coefficient of .27 reached the .10 level. The majority of the correlation coefficients for both samples were significant at the .01 level or beyond.

As expected the highest correlations were between variables obtained by the same method of measurement -- self report of Social Compatibility and Study Compatibility,[5] and roommate rating of HEP and Responsibility. Taking into account these high correlations due to common method variance, there tends to be a clustering for each subsample of the three social compatibility variables (self report of Social Compatibility, roommate rating of HEP, and choice of roommate for Confidant) and the two task-oriented compatibility variables (self report of Study Compatibility and roommate rating of Responsibility).

In summary: (1) There are substantial intercorrelations among the various psychometric measures of roommate compatibility. The magnitude and pattern of intercorrelations were crossvalidated in the two subsamples. (2) Roommate choice for Confidant tends to have the lowest correlations with the other variables, which may be explained by the limited variance of this variable. (3) The highest correlations are between variables with a common measurement procedure, and may thus be considered spuriously high. (4) When the variance due to common measurement procedures is taken into account, there appears to be a clustering of the three social-oriented compatibility variables and of the two task-oriented compatibility variables.

Mutual Choice of Roommate as an Index of Compatibility:

Mutual choice of roommate (compared to randomly assigned pairs) may be considered as a measure of initial interpersonal attraction, i.e., both members of the pair were attracted to each other or they would not have chosen each other as roommates on the housing form. One would expect such mutually chosen pairs of roommates to be more compatible than randomly assigned pairs of roommates, but whether they are is an empirical question.

Choice of roommate has been used in some studies as a measure of compatibility, as have sociometric choices of partners or others in various studies of group cohesiveness and interpersonal attraction. However, choosing another does not insure compatibility -- take divorce of partners chosen for marriage for example. An objective of this research was to compare the compatibility of mutually chosen subjects with compatibility of randomly assigned subjects, after roommates live together for approximately two months in the roommate relationship.

Although the magnitude and pattern of intercorrelations among the five psychometric compatibility variables were similar for mutual choice and randomly assigned subjects (see above), a difference between these two groups appears when we examine their means on the compatibility variables. For each subsample, the means and variances on the compatibility variables are shown at the bottom of Table 1. The means of the mutual choice group are greater for four of the five compatibility variables. Analysis of variance comparing the differences between these two subsamples yielded the following results: for choice of roommate as Confidant F=371.46, (df=1/248, p<.001); for self report on Socail Compatibility F=19.83 (df=1/272, p<.001), for roomate rating on Responsibility F=2.82 (df=1/252, p<.10). The difference between means on the other two compatibility variables did not approach statistical significance.[6]

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[5] The correlation between self report on Study Compatibility and self report on Social Compatibility are artifactually inflated, since the study compatibility item is one of the four items included in the Social Compatibility category. See Footnote 2 for fuller explanation.

In order to determine the size of the relationship between the five psychometric measures of compatibility and the mutual choice versus random assignment variable, the randomly assigned subjects were coded 0 and the mutual choice subjects were coded 1. Point-biserial correlations were caculated between the choice variable and each of the five psychometric compatibility variables for the combined sample of 276 subjects. The correlations of the choice variable with the psychometric measures were as follows: .35 for choice of roommate as Confidant; .24 for self report of Social Compatibility; .15 for self report of Study Compatibility; .09 for roommate rating on Responsibility; -.03 for roommate rating on HEP. The point-biserial correlations agreed with the F-ratios in indicating greater compatibility for mutual choice pairs. But considering the magnitude of the correlations the difference is not great. Examination of frequency distributions indicated that in spite of mean differences on compatibility scores, there is a full range of compatibility-incompatibility in mutual choice pairs as well as in randomly assigned pairs.

In summary, it appears that the mutual choice index of initial interpersonal attraction is related to subsequent compatibility in the ongoing roommate relationship, as reflected by scores on three of the psychometric compatibility variables. Although it accounts for only a small portion of the variance (of later psychometricly measured compatibility) we may consider the roommate choice variable as an index of compatibility.

Similarity of Roommate Characteristics:

On the basis of the analyses reported above it seems appropriate to consider mutual choice of roommate as an index of compatibility. But since there is much of the variability (of psychometricly measured compatibility) unaccounted for by this index, mutual choice may be thought of mainly as a behavioral criterion of initial interpersonal attraction. The third objective of the research was to test the similarity hypothesis, which would predict greater similarity between mutually chosen roommate pairs than between randomly assigned pairs. To test this prediction the various self report, peer rating, attitude, and grade variables introduced above were considered as personality characteristics.

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[6] Although there was a greater mean difference between groups on self report of Study Compatibility than on roommate rating of Responsibility, the variance was greater on the former variable, which explains why the F-ratio for Responsibility was greater than the F for Study Compatibility.

Within each pair, one roommate was arbitrarily designated as Roommate A and the other member of the pair was designated as Roommate B. For each personality characteristic, A's score was correlated with B's score. For these analyses the roommate pair (rather than the individual) is the unit of analysis. These analyses were done separately for the mutual choice pairs and for the randomly assigned pairs. For each personality characteristic, the correlation of A's scores with B's scores is an index of similarity. Thus we have 18 indexes of similarity between roommates, one for each variable.

As shown in Table 2 the indexes of similarity (correlation coefficients) are higher for mutual choice pairs than for randomly assigned pairs on 17 of the 18 variables. For the mutual choice condition, with the smaller N, it requires a larger correlation coefficient to reach an acceptable level of statistical significance. Yet six of these correlations reached the .05 level or beyond, while only two of the correlations for randomly assigned pairs reached the .05 level. Correlation coefficients from both samples were converted to Fisher's z-score and t-tests were performed on z-scores. The critical ratios and their significance levels are shown in the right column of Table 2. The differences between correlation coefficients (in favor of mutual choice pairs) are statistically significant for four of the variables.

Although the indexes of similarity were greater for the mutual choice pairs, 12 of the 18 correlation coefficients were positive for randomly assigned pairs; the correlation coefficient for self-esteem reached the .05 level of significance. If there were truly random assignment of roommate pairs, we would expect no initial similarity between roommates, and thus as many negative correlations as positive. Finding mainly positive correlations suggests that randomly assigned roommates become more similar as they live with each other. This is not just being perceived as similar by peers, but also tends to hold for self-report measures.

It is surprising that randomly assigned pairs, rather than mutual choice pairs, have a significant correlation between roommates (index of similarity) on predicted GPA. (Predicted GPA is based upon a prediction formula utilizing high school average, CEEB-Verbal, and CEEB-Math all obtained before subjects arrive on campus.) This could be just a chance finding, but could indicate that some factor was operating in the supposedly random assignment of roommates which was not entirely random. Nevertheless the whole pattern of correlations indicate that the indexes of similarity are much greater for mutual choice pairs than for randomly assigned pairs. It is also interesting that fall GPA for mutual choice pairs has a higher index of similarity than does their predicted GPA (.35 versus .16). This suggests that mutual choice pairs have become increasingly similar while they were roommates, as well as being similar when they initially chose each other as roommates.

Relationship Between Compatibility and Adjustment:

Table 3 shows the correlations of the five psychometric measures of compatibility with 12 measures of adjustment. There were eight measures of social-emotional adjustment -- two derived from peer ratings, five from self report on the personality inventory, and one self report

Table 2

Similarity of Characteristics in Roommate Pairs

Personality Characteristics	Randomly Assigned Pairs		Mutual Choice Pairs		Difference Between r's
	N	r	N	r	Z
Perceived by Others					
Peer Received					
HEP	82	.13	24	.69***	2.93**
Responsibility	82	.13	24	.61**	2.36**
Adjustment	82	.20	24	.65***	2.34**
Sociometric					
Leader	89	.13	32	.32	.94
Confidant	89	.08	32	.16	.38
Entertainer	89	-.01	32	.29	1.44
Self Report					
Self Ratings					
Self-Adjustment	66	.14	20	.38	.95
Self-Esteem	66	.23*	20	.49*	1.11
Personality Inventory					
Social Adjustment	66	-.03	20	.32	1.33
Lack of Anxiety	66	-.03	20	.07	.37
Lack of Symptoms	66	.11	20	.32	.81
Happiness	66	-.09	20	.28	.73
Academic Adjustment	66	.00	20	.67***	2.97**
Attitude toward Univ.	66	.07	20	.28	.80
Comparative Adjustment					
Relative Social Adj.	66	.10	20	.43*	1.32
Relative Academic Adj.	66	.05	20	.38	1.28
Academic Performance					
Predicted GPA	90	.22*	32	.16	.29
Fall GPA	95	.06	33	.35	1.46

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*p < .05
**p < .01
***p < .001

of Relative Social Adjustment (social adjustment during the first quarter of college compared with social adjustment back in high school). Academic achievement is measured by fall GPA, the Academic Adjustment category from the personality inventory (satisfaction with academic achievement, perceived ability to concentrate on studies, and enjoyment of studies) and Relative Academic Adjustment (perceived achievement in college compared to high school). The twelfth variable was a measure of Attitudes toward the University, a 13 item category from the personality inventory with items reflecting students' reactions and attitudes toward various aspects of the University as an institution (e.g., courses, meals, registration, administration, etc.).

To summarize the analyses, each of the five compatibility variables was correlated with each of the 12 measures of adjustment. Thus it is possible to compare the relative effectiveness of the five compatibility variables in predicting adjustment, as well as seeing consistencies among these alternative measures of compatibility.

There were a total of 206 subjects in the randomly assigned sample and 70 subjects in the mutual choice sample. However for some instruments there was not complete data for all subjects. The number of subjects entering into each correlation coefficient may be determined as follows. The number of subjects with scores for each compatibility variable are shown in a row at the bottom of Table 3. The number in parentheses for each instrument of adjustment variables are the N for randomly assigned subjects, followed by N for mutual choice subjects. The approximate N for any given correlation coefficient may be determined by the lesser of the N for adjustment variable and N for compatibility variable.

Social-Emotional Adjustment. Although few of the correlations are large, there appears to be a consistently positive relationship between compatibility and social-emotional adjustment. The five compatibility variables correlated with the eight measures of social-emotional adjustment generate 40 correlation coefficients for each of the two subsamples. For randomly assigned subjects 33 of the 40 correlations are positive, with two of these reaching the .05 level of significance or beyond; while 30 of the 40 correlations for the mutual choice subjects are positive, with six of these reaching the .05 level of statistical significance or beyond. Considering all five compatibility variables together, then, there appears to be a small but consistently positive relationship between roommate compatibility and social-emotional adjustment.

Since the pattern of relationships among compatibility and adjustment was approximately the same for both subsamples, data from all subjects were combined into an overall sample of all 276 subjects. Correlations between compatibility and adjustment variables are shown in Table 4. All but six of the forty correlations (five compatibility variables x eight measures of social-emotional adjustment) were positive, with 12 of these reaching the .05 level of significance or beyond. In order to determine the best measure of compatibility as a predictor of adjustment, the median of the eight adjustment correlations was taken for each compatibility variable. The median correlations are shown in the row of Table 4 at the bottom of the social-emotional adjustment variables. Although

Table 3

Roommate Compatibility as Related to Adjustment and Academic Performance

Adjustment Variables	Randomly Assigned					Mutual Choice				
	Self Report		Roommate Rating		Roommate Choice	Self Report		Roommate Rating		Roommate Choice
	Social Comp.	Stud. Comp.	HEP	Res.	Confidant	Social Comp.	Stud. Comp.	HEP	Res.	Confidant
Social-Emotional Adjustment										
Peer Ratings (N=185,59)										
Adjustment	.13	.14	.15	.09	-.09	.14	.03	.34*	.15	.30*
Socially Adept	.10	.09	.14	-.02	.02	-.01	-.11	.10	.16	.23
Personality Inventory (N=164,51)										
Social Adjustment	.14	.07	.22**	.09	-.04	.03	.02	.26	.31*	.17
Lack of Anxiety	.02	.06	.08	.09	-.15	-.20	-.17	.02	.04	-.02
Lack of Chronic Worry	.16*	.15	.07	.05	.04	.28*	.50**	.33*	.30*	.20
Lack of Symptoms	-.01	.07	-.07	.00	-.06	-.10	.06	-.09	-.10	.15
Happiness	.14	.05	.12	.04	.03	.14	.26	.29	.18	.20
Social Comparison (N=163,51)										
Relative Social Adj.	.10	.00	.16	.00	.07	-.13	-.06	.18	.20	.09
Academic Performance										
Grade-Point Average (N=203,68)	-.03	-.04	-.06	.06	.03	-.01	-.01	.15	.17	-.05
Academic Adjustment (N=164,51)	-.03	.04	-.01	.11	-.03	.05	.23	.34*	.34*	.07
Relative Academic Adj. (N=163,51)	.00	-.08	-.02	-.01	-.10	.06	.19	.21	.08	.00
Attitudes Toward University										
Attitude (N=164,51) toward Univ.	.13	.15	.12	.19	.03	.12	.24	.30	.30	.17
N for Compatibility variables	163	164	155	155	148	51	51	49	49	47

Note.--The numbers in parentheses for each instrument or source are N for randomly assigned subjects, followed by N for mutual choice subjects.

*$p < .05$
**$p < .01$

Table 4

Roommate Compatibility as Related to Adjustment and Academic Performance -- Combined Sample

Adjustment Variables	Measures of Roommate Compatibility				
	Self Report		Roommate Rating		Roommate Choice
	Social Comp.	Stud. Comp.	HEP	Res.	Confidant
Social-Emotional Adjustment					
Peer Ratings (N=244)					
Adjustment	.16*	.14*	.19**	.12	.07
Socially Adept	.12	.07	.12	.04	.13
Personality Inventory (N=215)					
Social Adjustment	.13*	.07	.23**	.15*	.05
Lack of Anxiety	-.01	.01	.06	.08	-.07
Lack of Chronic Worry	.18**	.23**	.14*	.12	.08
Lack of Symptoms	.03	.03	-.07	-.03	-.01
Happiness	.15*	.12	.16*	.10	.11
Social Comparison (N=214)					
Relative Social Adj.	.04	-.02	.16*	.06	.06
Mdn. r Soc.-Emot. Adj.	.12	.07	.15*	.08	.07
Academic Performance					
Grade-Point Average (N=261)	-.04	-.03	-.05	.08	.01
Academic Adjustment (N=215)	-.04	.07	.07	.16*	-.04
Relative Academic Adj. (N=214)	.01	-.02	.03	.01	-.07
Attitudes Toward University					
Attitude (N=215) toward Univ.	.14*	.17*	.16*	.22*	.07
N for Compatibility variables	274	274	253	253	250

Note--The numbers in parentheses are N for the variables in each instrument.

$^{*}P < .05$
$^{**}P < .01$

the differences are not large, roommate rating on HEP (median r of .15, $p < .05$) is the best roommate compatibility predictor of social-emotional adjustment; correlations of this variable were positive with seven of the eight adjustment variables, with five of these significant at the .05 level or beyond. For Social Compatibility, the most straight-forward and simple self-report compatibility variable, seven of the eight correlations with social-emotional adjustment variables were positive, with four of these significant at the .05 level or beyond.

Academic achievement. The five compatibility variables and three measures of academic achievement generate 15 correlation coefficients for each subsample, shown in Table 3. Twelve of the 15 were positive for mutual choice pairs, with two reaching the .05 level of statistical significance. Roommate rating on HEP and roommate rating on Responsibility had positive correlations with GPA as well as with self-report measures of academic adjustment, two of the latter reaching the .05 level of significance. Self-report of Study Compatibility had positive correlations with the two self-report measures of academic adjustment but was correlated close to zero with GPA. Self-report of Social Compatibility and roommate choice for Confidant are correlated around zero with all three measures of academic adjustment. For randomly assigned subjects only five of the 15 correlations between roommate compatibility and adjustment were positive. However, from examination of Table 3 it is noticed that none of the correlation coeficients deviate far from zero, so it is more appropriate to consider that there is no relationship (rather than a negative relationship). Considering all the data, it is probably safest to conclude that there was no relationship between compatibility and academic achievement. However, there is the hint of a positive relationship with mutual choice subjects, which does not hold up with randomly assigned subjects, which should be worth considering in future research. Also, for both subsamples, roommate rating on Responsibility has the strongest relationship with academic achievement, reaching the .05 level of significance for self-report of Academic Adjustment for the combined sample as shown in Table 4.

Attitude toward the university. For randomly assigned subjects and mutual choice subjects, as shown in Table 3, all five compatibility variables were positively correlated with the measure of Attitude Toward the University. For the combined sample, shown in Table 4, four of these correlations reach the .05 level of statistical significance.

Relationship between compatibility and adjustment, using mutual choice versus random assignment as an index of compatibility. Mutual choice of roommate was considered as a measure of initial interpersonal attraction. In connection with Table 1, it was shown that mutual choice subjects had significantly higher scores (than randomly assigned subjects) on several of the compatibility variables. Further, in connection with Table 2, it was found that there was greater similarity between mutual choice pairs of roommates (than randomly assigned pairs of roommates) on a number of adjustment and personality variables. With these findings we may consider mutual choice of roommate as a crude index of future roommate compatibility. Relationship between the roommate choice variable and adjustment was examined by comparing means of mutual choice subjects with means of randomly assigned subjects on twelve measures of adjustment. As shown in Table 5, the difference in adjustment means of these two subsamples was slight for all but two

Table 5

Mean Adjustment Scores of Randomly Assigned and Mutual Choice Subjects

Adjustment Variables	Randomly Assigned[a]	Mutual Choice[b]	SEdiff	t
Social-Emotional Adjustment				
Peer Ratings				
Adjustment	4.54	4.70	.063	2.54*
Socially Adept	3.53	3.79	.084	3.10**
Personality Inventory				
Social Adjustment	3.84	3.85	.095	< 1
Lack of Anxiety	3.90	3.97	.084	< 1
Lack of Chronic Worry	3.20	3.17	.099	< 1
Lack of Symptoms	4.43	4.44	.069	< 1
Happiness	3.50	3.55	.135	< 1
Social Comparison				
Relative Social Adj.	3.10	2.99	.163	< 1
Academic Performance				
Grade-Point-Average	77.00	78.20	.766	1.57
Academic Adjustment	3.40	3.27	.094	-1.38
Relative Academic Adj.	3.67	3.68	.166	< 1
Attitudes Toward University				
Attitude toward Univ.	3.40	3.49	.085	1.06

[a] N for randomly assigned subjects ranged from 163-203 for various variables. Exact N for variables from various instruments and sources may be seen in Table 3.

[b] N for mutual choice subjects ranged from 61-68 for various variables. Exact N for variables from various instruments and sources may be seen in Table 3.

$*p < .05$
$**p < .01$

measures of adjustment. For both peer rating measures of social-emotional adjustment the differences were statistically significant in favor of mutual choice pairs. Since the significant differences were confined to peer rating variables, this can be accounted for by generally higher social reputation of mutual choice subjects, and may reflect initial level of adjustment rather than change of adjustment during the fall quarter. Comparing the results of Tables 4 and 5, it appears that the psychometric measures of roommate compatibility obtained during the ongoing roommate relationship are better predictors of social-emotional adjustment during the fall quarter than the index of initial roommate choice.

Summary and Discussion

This is a rather long report, actually incorporating the investigation of several topics pertaining to roommate compatibility, and using a common set of subjects and measures. For this reason, this section is intended to give a moderately concise summary and interpretation of the findings. The paragraph below provides a summary of the main elements of the methodology. That is followed by sections summarizing, interpreting, and discussing results of various parts of the research. The report is concluded by a discussion of implications from the research.

Subjects were 276 college freshmen (138 pairs of roommates) living in a large men's residence hall. For many of the analyses subjects were divided into two subsamples -- 70 students (35 pairs) who mutually chose each other as roommates on a housing form, prior to arrival on campus, and 206 students (103 pairs) who were randomly assigned as roommates. Scores were obtained on five compatibility variables -- self-report of Social Compatibility, self-report of Study Compatibility, rating of roommate on Health-Engendering Personality (abbreviated HEP, and reflecting consideration for others, warm interpersonal relations, and similar traits), rating of roommate on Responsibility, and whether roommate was chosen as Confidant. Parts of the research were concerned with relationships among various compatibility variables, and with comparing the compatibility of mutual choice pairs and randomly assigned pairs. Other parts of the research were concerned with the relationship between compatibility and adjustment. For this purpose subjects' scores were obtained on eight measures of social-emotional adjustment, three measures of academic achievement (including GPA), and a variable measuring attitude toward the university. The methology was strengthened by inclusion of compatibility and adjustment variables from several different instruments and sources of measurement. Still another part of the research was concerned with comparing mutual choice pairs with randomly assigned pairs in terms of similarity (of pairs of roommates) of personality characteristics; correlations of roommate pairs on each personality characteristic were used as indexes of similarity. Summaries and interpretations of the results follow below.

Measuring roommate compatibility. Two compatibility variables were based upon straight forward questions, in effect asking subjects "How compatible are you?" (in personal and social relations, and as study companions). It should be noted that answers were on a five-point scale ranging from "very compatible" to "very incompatible," rather than simply true-false or yes-no answers as are often used. It is interesting that these straight forward measures of compatibility were substantially correlated with the more indirect (rating and sociometric choice) measures of compatibility.

Among the five compatibility variables the highest correlations were between measures obtained from the same instrument or procedure. When taking into account these methodologically inflated correlations, there appeared to emerge two semi-independent dimensions of compatibility -- one dealing with personal-social relations, and the other a more task-oriented dimension involving responsibility in the roommate relationship and compatibility as study companions. This suggests the need, in future research, of taking these different dimensions of compatibility into account more explicitly. Considering the moderate-to-high intercorrelations among compatibility variables, overall, and the specific compatibility content of two of the variables, probably the main thing reflected by the various variables is a generalized feeling of compatibility with roommate.

Mutual choice of roommate and compatibility. In other research roommate choice has been used as an indicator of compatibility, while choices for friend and co-worker have been used as measures of interpersonal attraction and group cohesivness. It is assumed that students who choose each other as roommates are compatible. But with first quarter freshmen, especially, choice may be based upon such superficial factors as coming from the same hometown, not knowing anybody else at the big university, etc. It is an empirical question of how compatible mutually chosen roommates will be in the ongoing roommate relationship when measured after approximately 7-8 weeks of living together.

Operationally the question for this study was, how compatible are mutually chosen roommates compared with subjects randomly assigned as roommates? As shown in the results mutual choice pairs had significantly higher compatibility scores on three of the five compatibility variables. Sociometric choice for roommate as Confidant accounted for the greatest difference, and this is the compatibility variable most similar to the designation of mutually chosen verses randomly assigned roommates. In spite of these significant differences in favor of mutual choice pairs, this designation accounts for a relatively small amount of variance, as indicated by point-biserial correlations of mutual choice versus randomly assigned roommates with each of the five compatibility variables. In summary, mutually chosen pairs as a group are more compatible than randomly assigned roommates. In spite of the mean differences, the full range of compatibility-incompatibility is found among mutual choice pairs, and there is considerable overlap with compatibility scores of randomly assigned pairs.

The similarity hypothesis. The leading hypothesis for predicting interpersonal attraction or compatibility is based upon similarity of characteristics. This hypothesis was supported in the present research by finding that mutual choice pairs were more similar (than randomly assigned pairs) on a variety of personality and adjustment characteristics. From consistent findings across several instruments and sources of measurement (including peer ratings and grades as well as self reports) this seems to be "real similarity" and not just "assumed similarity." Positive (but lower) indexes of similarity between members of randomly assigned pairs suggest that living together contributes to similarity.

Mutual choice of roommate, by definition, is an indicator of interpersonal attraction (i.e., as a group, people who choose to room with each other must be mutually attracted to each other, although superficial reasons such as same hometown, etc. may also contribute to mutual choice). According to the above findings, the similarity hypothesis is confirmed for interpersonal attraction (as indicated by mutual choice). But mutual choice of roommate was found to be related to roommate compatibility, so part of the variance accounted for by mutual choice in the various indexes of similarity may be due to compatibility as well as to interpersonal attraction (to the extent that they are separate constructs). Unfortunately similarity of characteristics was not examined in relation to the five psychometric measures of compatibility. That should be a topic for future research.

Compatibility and social-emotional adjustment. There was a consistent relationship between roommate compatibility and social-emotional adjustment, across five alternative measures of compatibility. Although the correlation coefficients did not account for a large portion of variance, these findings were replicated for randomly assigned subjects and mutual choice subjects. Confidence in this relationship is increased when it is considered that the relationships were replicated and were obtained for several different instruments and sources of measurement.

It is not surprising that the correlations between roommate compatibility and social-emotional adjustment (although positive) are not large, when it is considered that students are exposed to many sources of influence in addition to their peers, and peer influence is not confined to influence from a single individual. Although a person's roommate is probably the single most important source of peer influence, this is a relatively small portion of the total influence to which college students are exposed.

For two measures of adjustment mutual choice subjects had higher adjustment scores than randomly assigned subjects. But overall the psychometric measures of compatibility, obtained in the ongoing roommate relationship, predicted social-emotional adjustment better than the interpersonal attraction of original roommate choice.

Compatibility and attitude toward the university. The correlations between the compatibility variables and a measure of Attitude Toward the University were consistently positive in both subsamples. Although they were not large enough to account for a large portion of variance, the correlation with Attitude Toward the University was statistically significant for four of the five compatibility variables. It does not seem unreasonable for generalized attitude toward the university (or the world in general) to be influenced by one's feeling of compatibility in the roommate relationship.

Compatibility and academic achievement. The safest assumption about the relationship between fall quarter compatibility and academic achievement is that there is no relationship. However there was a tendency for a positive relationship in mutual choice pairs (in contrast to randomly assigned pairs), and with the peer rating and task-oriented compatibility variables, especially roommate rating on Responsibility.

Mutual choice of roommate as a moderator of the relationship between compatibility and adjustment. In general the correlations between compatibility and adjustment were higher for mutual choice subjects than for randomly assigned subjects. This may simply be a chance finding made more likely in the smaller sample (of 76 mutual choice subjects compared with 206 randomly assigned subjects). However, there is an explanation of why the relationship between compatibility and adjustment should be higher in mutual choice pairs. In a sense these roommates (compared to randomly assigned roommates) have committed themselves to spend time with and be influenced by each other, and would tend from the beginning to depend upon one another for mutual support. Being more open to influence from roommate, compatibility would contribute to positive adjustment whereas incompatibility would contribute to maladjustment. In contrast individuals who did not choose to room together may find it easier to avoid each other, seeking emotional support and friendship elsewhere if they find incompatibility with their roommate. The tendency for mutually choosen pairs to avoid avoiding each other (even when incompatible) could be assimilated under the theory of cognitive dissonance.

Questions of measurement and causality. A question may be raised of the extent to which various findings can be explained by artifacts of measurement. For example, similarity of roommates on variables obtained by peer ratings could be explained by both roommates sharing several of the same raters, who carried their response sets over from their rating of one member of the pair to the other. Social reputation from being associated with each other could also contribute to similarity of ratings. But this applies to randomly assigned pairs as well as mutual choice pairs. With the magnitude of the correlations found, and the difference in magnitude for the two subsamples, there must be some similarity beyond these artifacts. Similar artifacts of measurement might be advanced for self-report measures. But confidence in the main relationships reported above is increased when it is considered that most of these relationships held across several instruments and sources of measurement.

The question of causality will inevitably arise, especially concerning the relationship between compatibility and adjustment. The author would be among the first to admit that adjustment may contribute to compatibility as well as the other way around. However, the results, along with widely held expectations, do carry the implication that compatibility contributes to adjustment. Analyses from the present research indicate that this relationship is not large, although it seems fairly well confirmed at least for social-emotional adjustment. It remains for further research to clarify the causal relation, and to investigate the size of the relationship more closely.

Adaptability of students, and restricted variance. As pointed out above, there is a full range of compatibility for randomly assigned and mutual choice subjects (although mutual choice subjects have higher mean differences on three of the five compatibility variables). Far more students find compatibility than incompatibility with their roommates. On all compatibility variables the mean is well to the positive side of neutral. The distribution of perceived compatibility may be illustrated by responses of a sample of 147 students, representative of the larger population, to one of the items of the self-report social compatibility variable.

How compatible are you in your daily contacts as roommates? (Consider personal characteristics and habits, whether you get on each other's nerves, or antagonize each other, help each other, avoid each other, etc.)

3%	(1)	very incompatible (get along very poorly) in personal contacts
8%	(2)	rather incompatible in this respect
11%	(3)	somewhat compatible in this respect
41%	(4)	quite compatible in this respect
37%	(5)	unusually compatible (get along extremely well) in daily personal contacts

For this aspect of compatibility 78% report being quite compatible or unusually compatible. On one hand this restricts the variance of compatibility scores from unselected samples, and thus attenuates the relationship with other variables. On the other hand, this suggests that the majority of students are quite adaptable in being able to work out a compatible roommate relationship.

There are still 11% who report being only somewhat compatible and 11% who report being incompatible. For these students a change in roommate or roommate relationship is probably a matter of much importance. Compatibility, as reflected in these scores, probably is overestimated -- considering the reluctance of subjects to give socially undesirable answers in regards to self or others, and the fact that some subjects may have purposely been conservative in rating compatibility for concern that roommate might see the ratings

Implications

From the standpoint of a college administration and faculty, what difference does roommate compatibility make? According to this study, the relationship between compatibility and grades is dubious. However, we might expect this relationship to increase after roommates have been living together over a longer period of time -- this needs further investigation. (A discussion relevant to this point is included in Appendix G.)

The literature on group cohesiveness may help in understanding the potential relationship between compatibility and academic achievement. Some investigators examining the effects of group cohesiveness upon productivity find a positive relationship, while others have found no relationship or have found that the more compatible the groups the lower the productivity. These contradictory findings have been reconciled by the generalization that group cohesiveness contributes to productivity when the goals of the group members are considered. Often the goals of the group members do not coincide with those of the management in work groups, nor of the investigator in research studies. For example a cohesive group may be more interested in socializing than in high productivity when their goal is contrary to the goals of management.

A similar situation may explain the lack of relationship between roommate compatibility and academic achievement. If the main goal of roommates, as a pair, were study effectiveness, then we may find that study performance and thus academic achievement are higher for compatible pairs than for incompatible pairs. But other data from this research program indicates that students are oriented more toward social relations than studies. In this study we did find a positive relationship between roommate compatibility and social-emotional adjustment, which fits in with this explanation.

For compatibility to be related to academic achievement two other necessary conditions are postulated. (a) Both roommates must be oriented toward studies. (b) They must be working as a group (pair) toward the study goals -- preferably, studying together or helping each other on the same topics, but at least working cooperatively in the sense of consciously attempting to create a favorable study atmosphere for each other and avoid distracting each other from the study goal. Merely informing students of this may facilitate the development of these conditions. Other ways for increasing study-orientation are discussed in Appendices F, J, and M, and in the main body of the report.

To the students themselves day-to-day satisfaction and social-emotional adjustment are important as well as academic achievement. Hopefully, student adjustment and personal development are important to administrators and faculty as well. But if one must be hard nosed about it, we would expect roommate compatibility to be related to attrition, i.e., subjects who are incompatible with their roommates are more likely to become dropouts. The relationship between compatibility and attrition is an area which needs further investigation.

An obvious implication from this research involves prediction and assignment of compatible roommates. Mixed results have been reported in the literature from homogenous assignment of subjects on the basis of similar majors and similar academic aptitude. This study carries suggestions that are consistent with predominent theory and some research findings that similarity of personality characteristics contributes to compatibility. However, more research and synthesis of existing findings are needed to clarify the characteristics which are most important for similarity and compatibility. Perhaps a more important contribution of the current research concerns procedures for measuring compatibility, adjustment, and personality from several sources and instruments, with convergent relations.

It is the opinion of the author, and consistent with the findings of the research study by Nudd (1965), that idiosyncratic attributes must be taken into account for substantial prediction of roommate compatibility. In other words there are wide individual differences in the things that annoy and satisfy people, and these must be taken into account if we are to predict in advance and assign students as roommates so as to maximize compatibility.

There was some indication from the present research that health-engendering behavior (consideration, warmth, trust) of the student toward his roommate was the aspect of compatibility which contributed most substantially to adjustment. This is consistent with the findings reported in Appendix G, in other research by Alsobrook (1962, 1967), and could provide a basis for counseling the students on ways to maintain compatible relationships as roommates.

Content analyses were made of students' answers to questions about characteristics sought in a roommate and about characteristics one would want to avoid in a roommate. The answers to both questions, especially the one about characteristics desired in a roommate, support the author's contention about wide individual differences in the characteristics that are relevant for compatibility. The answers to both questions, especially the one about characteristics to avoid in a roommate, indicate that the kind of characteristics tapped by the HEP scale (especially the negative end, health-depressing characteristics) are relevant to most students.

Appendix I

Religiosity as Related to Compassion and Adjustment

Although there is concern by many about the diminishing role played by religion in American society, and for college students in particular, most would agree that religion has been one of the major influences in our society. Yet the literature on religion contains relatively few empirical studies relating religiosity to psychological variables. Of these studies most have focused upon the relationship between religious beliefs and such variables as social or economic class, educational level, and other belief systems, especially liberalism-fundamentalism.

There have been relatively few studies relating religiosity to adjustment, although the importance of this relationship (at least for some people) has been pointed out in case studies by psychiatrists, is reflected in the growing field of pastoral counseling, and is inherent in some teachings of the various major religions.

Although a major portion of the major religions are devoted to moral teachings, there have been few systematic investigations relating compassion to religiosity. This is of major concern during a period of turmoil and change for college students, at a time of supposedly hightened social awareness in which compassion should be quite relevant. New social concern and concern for moral issues is reflected in campus demonstrations and student disorders. However this form of morality does not reflect compassion so much as efforts on many campuses by college students to contribute of their time toward some form of social welfare work in the community. Compassion should form a motivational basis for such social service work, and should increase the effectiveness with which it is done. The development of compassion should also be an important aspect of personality development in college students, on the brink of their full fledged participation in the larger society.

The purpose of this study was to investigate the relationship of religiosity with adjustment and compassion. Most studies of religiosity have used denominational affiliation or some form of self report about religious beliefs as the main measure of religiosity. In contrast, the measure of religiosity used for this study is based upon self reports of (a) frequency of church attendance, (b) the extent to which the subject practices his religion, and (c) the extent to which he advocates his religion to others. These are measures which are relatively unrelated to specific religious doctrines, i.e., the religiosity variable was designed to determine subjects' religious participation apart from the nature of their particular beliefs.

One working hypothesis was that the extremely religious and the extremely unreligious (both extremes on the religiosity continuum) would be perceived as less compassionate by their peers, and that the most compassionate would be the moderately religious. Concerning social-emotional adjustment, it was hypothesized that the extremely religious and the extremely unreligious would be low in social adjustment and freedom from anxiety. However, on relative social adjustment (adjustment in college compared with adjustment back in high school) it was predicted that the extremely religious would be the most poorly adjusted, being unable to find normative groups to replace the ones that had supported their high religiosity back in their home community. A corrolary to this hypothesis was that those very low on religiosity would find higher relative social adjustment in college compared to high school, since the non-religious viewpoint is more compatible with the more liberal viewpoints at a large university than with the religiosly influenced norms of their hometowns.

Method

Subjects. Subjects were 182 freshmen living in a large men's dormitory on the campus of a Southern state university. Most of the subjects were Protestant. Although denomination was not systematically related to religiosity scores, inspection of the data revealed that most of the subjects at each religiosity level (including the extremely religious and the extremely non-religious) were Protestant (or indicated no religious affiliation in the case of several of the extremely non-religious), with relatively few Catholic or Jewish subjects. The subjects included in this study were students who answered the second of two questionnaire booklets administered near the end of the spring quarter, those subjects on whom there was complete data on various questions pertaining to religiosity. Approximately half of the subjects who had been administered these booklets failed to return an answered booklet, or did not complete all of the questions in the last (biographical data) section of the booklet in which the religiosity questions were contained. Thus this sample was probably more restricted to "volunteers" than many samples utilizing questionnaire-derived measures. Scores on compassion and adjustment (to be described below) were obtained from various parts of two booklets administered during the spring quarter, and the fall quarter. With various variables derived from different sources and at different times, there was incomplete data for some subjects. For each analysis relating religiosity with some measure of compassion or adjustment all subjects with data on the compassion or adjustment variable were included in the analysis.

Measurement of Religiosity. The religiosity variable was based upon answers to three questions. On the first of these subjects indicated the frequency of their church attendance on a seven-point scale ranging from "more than once a week" to "never." The second question asked the subjects, "To what extent do you follow the teachings of your religion?" Subjects responded by checking one of four alternatives, which formed a four-point scale ranging from "very much" to "little or never." The third question asked, "To what extent do you advocate and argue for your religion to others?" Four alternatives formed a four-point scale ranging from "often, openly, and strongly" to "almost never." Based on answers to these three questions, a composite seven-step religiosity scale was formed. As an example, category 1 (the extremely unreligious) was composed of subjects whose church attendance ranged from "never" to "several times a year," who reported that they practiced their religion "almost never," and who reported that they advocated it "almost never." Category 7 (the extremely religious) was composed of subjects who attended church "once a week" or "more than once a week," who reported that they followed the teachings of their religion "fairly consistently" or "very much," and who reported that they advocated it to others either "strongly" or "often, openly, and strongly." Religiosity categories 2, 3, 4, and 5 were composed of subjects with intermediate scores on the three religiosity items.[1]

Measures of Adjustment. The three self report measures of adjustment were obtained from a personality inventory type questionnaire, the Reactions and Adjustment to Campus Environment Questionnaire. Each adjustment category was composed of several factor analytically related items. These variables are described in more detail in Appendix A, and described briefly below. Items in the Social Adjustment category reflect feeling accepted by others, success in social relations, satisfaction with other students, satisfying friendships, satisfaction from social activities and dating. Items of the Lack of Anxiety category were scored so that a high score refers to lack of anxiety and a low score refers to feelings of anxiety. Items indicate the extent and frequency of anxiety in various social relations, e.g., in bull sessions, when meeting and talking with strangers, when challenged by others, etc.; some items measured anxiety indirectly, e.g., asking how understanding the subject felt other students were, how often he was bothered by feelings of self-consciousness. The Relative Social Adjustment category consists of three items asking about social success, feeling accepted, and participation in social activities in college compared with social success, acceptance, and social participation back in high school. The measure of Relative Social Adjustment was obtained during the fall quarter, while measures of Social Adjustment and Lack of Anxiety were obtained during the spring quarter. The latter two variables pertain to level of adjustment during a given time. However, the Relative Social Adjustment category provides a retroactive measure of change in adjustment from high school to the first quarter of college, in a sense using subjects as their own controls.

Measures of Compassion. The three measures of compassion were based on how subjects were perceived by their peers (other students in their dormitory). Each student was rated by his roommate and four or five students in nearby rooms on various interpersonal behaviors and personality traits. One compassion variable was mean peer rating received on a factor analytically derived category of nine items pertaining to consideration for the feelings of others, warm and close interpersonal relations, and reversed scores on items pertaining to impatient and belittling behavior.[2]

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[1] There were only moderate correlations between the three religiosity items when incorrelated over all subjects. In classifying subjects in the seven religiosity categories criteria were set for each level such that a subject's scores must be roughly comparable (or at least not inconsistent) on each of the three items. For example, if a subject indicated a very religious alternative for one item but a very unreligious alternative for another item, he was considered a careless or inconsistent responder and not included in any of the seven religiosity categories. There were approximately 15 subjects who could not be classified due to such inconsistent responding, and they were eliminated from the study.

[2] This is the Health-Engendering Personality scale described in Appendix A and used in Appendixes G, H, and J for other purposes. Since most of the items pertain to behaviors which may be considered compassionate, it seemed relevant for use as one of the measures of compassion for this study.

The second and third measures of compassion were obtained from answers to two sociometric questions, administered in a booklet along with several other sociometric questions, in which subjects were to choose three people from their own floor of the dorm for each of several roles. The Help Others variable consisted of total sociometric choices received in response to the question, "Who seems most willing to spend his time helping others, without regard for personal gain?" The Comfortable and At Ease variable consisted of total sociometric choices received in response to the question, "Who would be most likely to make you feel comfortable and at ease, so you could express yourself openly without feeling tense or guarded?"

Results

The seven-step scale of religiousity was used as the independent variable. On the basis of this composite religiosity variable, subjects were divided into seven groups ranging from "extremely religious" to "extremely unreligious." A single classification analysis of variance was used to compare the compassion and adjustment scores of these seven groups, one analysis of variance for each of the three compassion variables and for each of the three adjustment variables. None of the F-ratios reached statistical significance. However, upon ploting the means for the adjustment and compassion variables of the seven religiosity groupings, there appeared to be a relatively consistent break between the three lowest levels of religiosity and the four higher levels for all three compassion variables and for the Relative Social Adjustment variable.

Subsequently the three lowest religiosity groups were combined into a broad low religiosity group and the four higher groups were combined into a broad high religiosity group. A single classification analysis of variance was used to compare these two broad religiosity groups on Relative Social Adjustment, and on each of the three measures of compassion. The F-ratios were statistically significant for two of the measures of compassion and for Relative Social Adjustment. It is the data for these variables that appear in Tables 1-3 and are plotted in Figure 1. Table 1 shows the means, standard deviations, and number of subjects for the two broad religiosity groupings on Peer Rating of Compassion, sociometric choice for person Comfortable and At Ease With, and self report of Relative Social Adjustment. Table 2 shows the means, standard deviations, and the number of subjects on the same three variables for each of the seven religiosity groupings. The analysis of variance tables for the two religiosity grouping and the seven religiosity grouping appear in Table 3. The results are plotted in Figure 1, with solid lines for the seven step grouping and dotted lines for the two step grouping of religiosity.

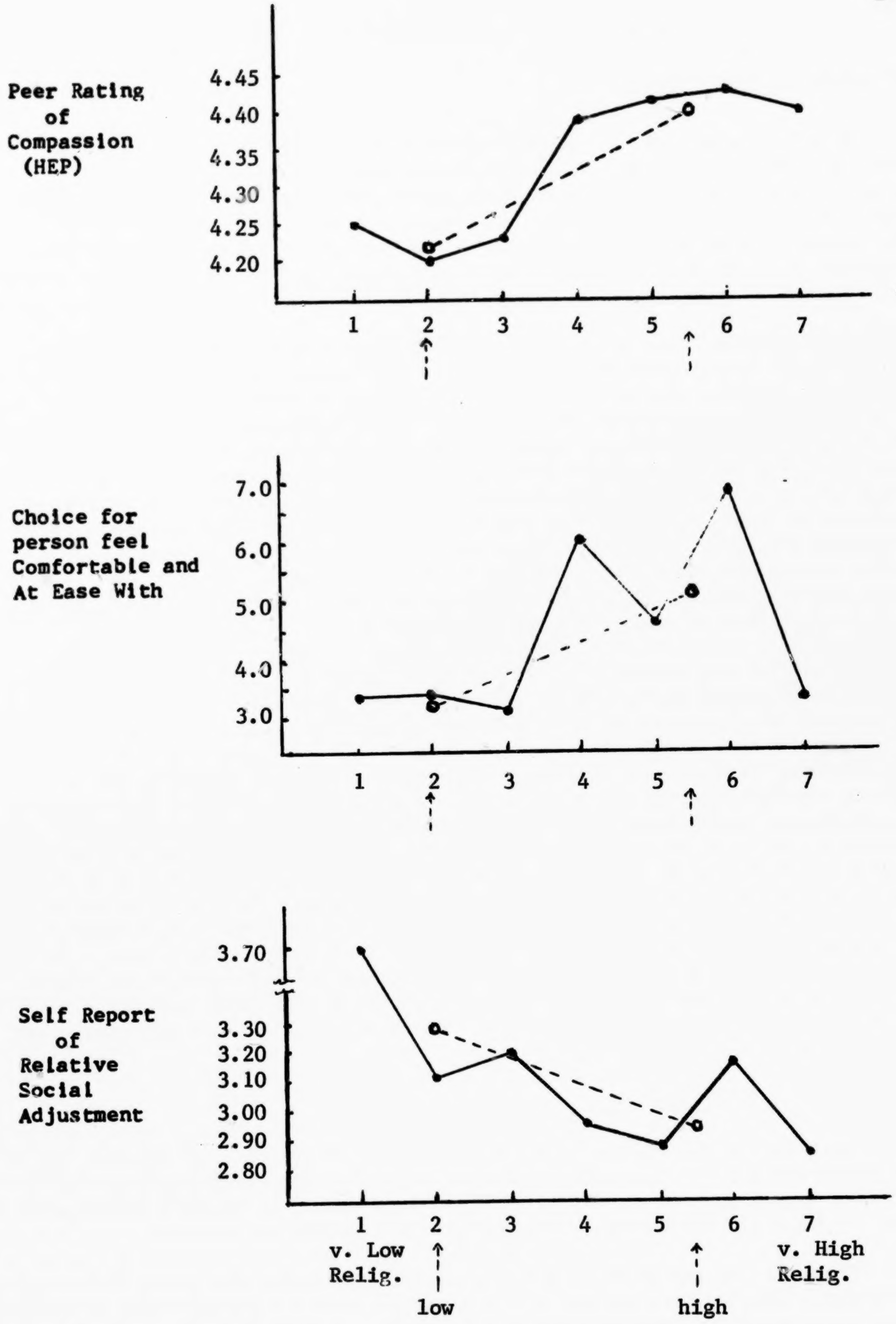

Fig. 1. Relationship of Religiosity to two measures of compassion and to relative social adjustment, for seven and for two groupings on Religiosity

Conclusions and Discussion

Religiosity and Compassion:

Briefly, the more religious subjects were rated by their peers as showing significantly more compassion and were significantly more likely to be choosen for a person with whom their peers felt comfortable and at ease. Both of the F-ratios for the two group analysis reached the .01 level of statistical significance. Although the F-ratio for a linear relation did not reach statistical significance for the Help Others variable, the pattern of means was similar (but with exceptions to be described below).

From Figure 1 it is evident that the four higher religiosity groups (4, 5, 6, 7) are higher on both measures of compassion than the three lower religiosity groups (1, 2, 3). For Peer Rating of Compassion there was little difference among the means of the four higher religiosity groups nor among the three lower religiosity groups.[3] With sociometric choice for person felt Comfortable and At Ease With there is little difference between the means of the three lower religiosity groupings, but there is a fairly wide fluctuation among the means of the four higher religiosity groups. This is accounted for mainly by the low compassion score received by subjects in the extremely religious category.[4] For this variable, then, there tends to be the curvilinear relation predicted by one of our hypotheses, at least at the upper end of the religiosity dimension.

Examining the content of the Peer Rating of Compassion category, we find only one item pertaining directly to warm interpersonal relations, while most of the items pertain more to a rational, volitional attempt to be considerate of the feelings of others and avoid hurting them. Thus a person may receive a fairly high peer rating on this variable while still lacking personal warmth. Examining the data jointly on these two measures of compassion the following picture emerges of the extremely religious (compared with the fairly religious). The extremely religious do make attempts, as dictated by teachings of their religion, to show compassion for others in the form of being considerate of their feelings, avoiding impatient and belittling behavior. However they lack the interpersonal warmth needed for others to feel comfortable and at ease with them. It is the fairly religious who receive high scores on both aspects of compassion as perceived by others. As a broad group the less religious subjects are perceived as significantly less compassionate by their peers on both variables.

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[3] This is illustrated by the small between groups sum of squares for the seven religiosity grouping compared with the two religiosity grouping in Table 3, helping to explain why the former analysis yielded non-significant F while the latter analysis yielded a significant F-ratio.

[4] There is no explanation for the dip in the curve for group 5 on the Comfortable and At Ease variable; it might be best to ignore this deviation, or to consider that categories 4 and 6 are hyper-elevated, since the mean for group 5 is still considerably higher than the means for groups 1, 2, 3, and 7.

Although the Help Others variable did not yield a significant F-ratio for the two group analysis nor the seven group analysis, the pattern of means warrants discussion in light of the foregoing picture. Categories 2 and 3, at the lower religiosity end, received few sociometric endorsements in the Help Others role. Like for the Comfortable and At Ease variable, the four higher religiosity groups all received moderate to high numbers of choices, with the extremely religious receiving less recognition on Help Others than the three moderately religious categories of subjects. However category 1 subjects, the extremely non-religious, received substantial recognition for Help Others. Comparing their relative standing on the three compassion variables, the following picture is suggested of the extremely non-religious. They are not especially considerate of the feelings of others, and do not make others feel comfortable and at ease with them. On the other hand, they are less complacent than their less extreme non-religious counter parts (subjects in groups 2 and 3), which is reflected in recognition by their peers of their helping others.

Religiosity and Relative Social Adjustment:

Analyses for Social Adjustment and Lack of Anxiety during the spring quarter yielded nonsignificant differences for the two group and seven group religiosity analyses. In other words there was little or no difference between the religious and non-religious in terms of absolute level of adjustment achieved (according to self report). It is only when we use a measure of relative adjustment (during the first quarter at college) that the significant difference emerges.

For Relative Social Adjustment the F-ratio of the two religiosity group analysis was significant at the point .05 level. The religious subjects were less well adjusted (than lower religiosity subjects) during their first quarter at college, in comparison with their adjustment back in high school. This finding fits our original hypothesis for those students extremely high on religiosity, i.e., their church is a major reference group back in their home town, which would be hard for them to replace on a large university campus. However, according to the means for the seven finer divisions of religiosity (as shown by the solid lines on the graph) Relative Social Adjustment of the extremely religious is no lower than for those more moderate on religiosity (i.e., groups 4 and 5). This aspect of the hypothesis is confirmed, then, for the broad category of religious subjects but has no special application to the extremely religious.

A corollary to the hypothesis was that those extremely low in religiosity would find a more liberal and permissive atmosphere on the university campus, and thus show an improvement in social adjustment relative to their social adjustment back in their home town. This expectation receives some confirmation by the shape of the curve for the seven group analysis, in which the extremely non-religious had the highest scores on Relative Social Adjustment.

In general the data picture supports the idea that the more religious college students fail to find in the campus community a comparable religious based source of psychological support that they had back in their home town. On the other hand, the predominant religious patterns of the home town may have served as a negative reference group for the extremely non-religious, who felt more accepted socially in the more liberal atmosphere of the college campus.

Summary, Qualification, and Implications:

In summary, religious college students are more likely (than low religiosity students) to be perceived as compassionate by their peers. They are likely to feel less well adjusted socially, compared to the social adjustment they felt back in high school (but are as well adjusted in terms of absolute level of social adjustment). It is only when making the grosser comparison between a broad religious group and a broad low religious group that the data reaches statistical significance. However, inspection of the means of the extremely religious and the extremely non-religious groups (of seven categories of religiosity) suggests that the hypotheses about these extreme groups still seem tenable. It appears, for example, that the extremely religious are comparable to moderately religious students in consideration for the feelings of their peers, but have less interpersonal warmth which makes it difficult for others to feel comfortable and at ease with them. This certainly fits the stereotype of various religious evangelists and zealots.

In interpreting these results, particularly those dealing with compassion, it should be recognized that all subjects, even those with the lowest scores on compassion, were volunteers, more likely to complete the second of a long tedious questionnaire administered shortly before spring quarter examinations. The effect of volunteer subjects is demonstrated by the fact that the scores on the compassion variables for all subjects (in this study) combined are somewhat higher than scores from the larger population from which the subjects came. It is likely that the relationships would be larger in a less restricted population.

Although the results are not as clearcut as one might desire, this research is in an area rather void of empirical studies. It is hoped that this study will generate further research, which will be more definitive in its findings. Although the tentative nature of the conclusions should be taken into account, the picture provided by these results seems to have the following implications.

It appears that the more religious college students have difficulty in making a good social adjustment on the large university campus, at least in comparison with the social adjustment to which they were accustomed back in their home communities during high school. This has implications for orientation and guidance of these students, particularly during their first quarter in college. It suggests the need for an early contact by the campus religious organizations, perhaps aided by contacts with home town churches through their denominational frameworks, and special attempts to provide social-psychological support early in the initial quarter. It would also be relevant for the orientation and guidance system of the university to acquaint students with the need for comparable or substitute reference groups in the campus community (to replace those left at home), and information or means for inclusion in these groups.

It appears that the more religious students do display more compassion to their peers (than the less religious students), but that the extremely religious have difficulty in converting this into productive interpersonal relations with others. Currently there is a trend for college students to be concerned about social problems, and on many campuses to participate in some form of volunteer work to help solve those problems. In some cases these volunteer efforts have been spearheaded by campus religious organizations; but it has not become the general rule. With proper organization and leadership the campus religious groups would seem to be especially appropriate sources to channel the compassion of their students into useful community service. Included in such a program should be some procedures to help the extremely religious increase the warmth and closeness of their interpersonal relations. Participation in useful community service, also, would be one way to help the religious college student in his social adjustment to the campus communicty.

Table 1

Means on Compassion and Adjustment for Two Religiosity Groupings

Variable	Statistic	Low Religiosity	High Religiosity
Peer Rating of Compassion	Mean	4.22	4.40
	s.d.	.41	.40
	N	63	96
Choice for person Comfortable and At Ease with	Mean	3.38	5.16
	s.d.	3.68	4.74
	N	72	106
Self Report of Relative Social Adjustment	Mean	3.27	2.94
	s.d.	.84	.90
	N	45	82

Table 2

Means on Compassion and Adjustment for Seven Religiosity Groups

	Statistic	Religiosity Grouping from Low to High						
		1	2	3	4	5	6	7
Peer Rating of Compassion	Mean	4.25	4.20	4.23	4.38	4.42	4.43	4.40
	s.d.	.44	.44	.36	.43	.38	.35	.41
	N	14	33	16	36	32	11	17
Choice for person Comfprtable and At Ease with	Mean	3.42	3.47	3.11	6.00	4.69	6.89	3.42
	s.d.	3.85	4.00	2.85	5.24	3.99	5.84	3.79
	N	19	36	17	37	35	13	21
Self-Report of Relative Social Adjustment	Mean	3.70	3.11	3.20	2.96	2.87	3.18	2.85
	s.d.	.76	.88	.76	.88	.95	.75	.99
	N	10	22	13	31	24	11	16

Table 3

Analysis of Variance of Religiosity Groups on Compassion and Relative Social Adjustment

Variable	Source	Sum of Squares	d.f.	Mean Square	F-ratio
Peer rating of Compassion, Seven Religiosity Groups	Between Within	1.30 25.48	6 152	.22 .17	1.30
Peer rating of Compassion, Two Religiosity Groups	Between Within	1.24 25.54	1 157	1.24 .16	7.61**
Comfortable and At Ease, Seven Religiosity Groups	Between Within	272.07 3185.75	6 171	45.35 18.63	2.43*
Comfortable and At Ease, Two Religiosity Groups	Between Within	136.67 3321.15	1 176	136.67 18.87	7.24**
Relative Social Adjustment, Seven Religiosity Groups	Between Within	6.40 92.67	6 120	1.07 .77	1.38
Relative Social Adjustment, Two Religiosity Groups	Between Within	3.04 96.03	1 125	3.04 .77	3.96*

* $p < .05$

** $p < .01$

Appendix J

An Attempt to Create a Positive Social Atmosphere for Adjustment and Learning

This research is based upon an earlier research study conducted with transfer students in a men's residence hall (Alsobrook, 1962). The initial question involved the concept of a Health-Engendering Person (HEP), a person who typically engenders positive mental health in his associates through his informal interactions with them. "Positive mental health" is considered in a broad sense to include how effectively a person functions in his job and socially, as well as the other aspects of adjustment usually included under the concept of mental health. On the basis of theoretical considerations of health-engendering behavior a Health-Engendering Personality Rating Scale (HEP scale) was developed, and was confirmed as internally consistent by factor analysis. Behavior tendencies measured by this scale are consideration for others, warm interpersonal relations, and trust in others. An individual's score on the HEP scale is obtained by pooling (averaging) ratings received from several peers. In the original study construct validity was demonstrated by positive correlations of the HEP scale with sociometric choices for filling therapeutic roles, and with a measure of interpersonal perception reflecting esteem for others.

The greatest practical implication from the previous research was the finding that roommates of HEPs were more likely (than average) to improve in mental health and grades, while roommates of students with low (or health-depressing) scores were more likely (than average) to have lower adjustment and grades. In a later field experiment in a psychiatric hospital, patients assigned to a ward with high health-engendering aides improved more than patients on average wards, but only when there was an opportunity for informal social interaction between aides and patients (Alsobrook, 1967). Although the original study was with college students in a residence hall setting, the field experiment in the psychiatric hospital was with a quite specialized population. From these two studies it appeared that health-engendering personality is generally useful for understanding informal interpersonal relations which facilitate positive adjustment and development. A field study replicating the effects of Health-Engendering college students upon their roommates is reported for a large sample of freshmen in Appendix G. In brief, it appears that HEPs did facilitate the social-emotional adjustment of their roommates, and did insulate them from becoming dropouts, but had no direct effect upon their academic achievement. However results were confined to effects manifested during the fall quarter, and some reasons were advanced for expecting effects upon academic adjustment (under certain circumstances) over a longer period of time.

The objective of the field experiment reported here was to create a positive social atmosphere conducive to adjustment and learning, by assigning a large proportion of HEPs to an experimental section of a men's dorm. Adjustment and academic achievement of students in this positive social atmosphere were to be compared with the adjustment and achievement of students in an experimental control section which did not have more than the usual proportion of HEPs.

Method

The design called for utilizing two relatively isolated sections of a large men's residence hall, with approximately 35-40 students per section. Approximately 20 "subjects" were to be assigned to each section--individuals representing the lower two-thirds of an adjustment continuum. Subjects were to be randomly assigned to these two sections, or matched on adjustment then randomly assign members of matched adjustment levels to the two sections. The remaining spaces in these two sections were to be filled by students considered as "influencers," whose personality and interpersonal behaviors would constitute the independent variable. The positive social atmosphere was to be created by assigning approximately 15 HEPs to one of these experimental sections. HEPs were defined as students with scores above the 80th percentile on the HEP scale (based upon mean peer ratings received) and receiving more than average share of sociometric choices for the role of confidant (person peers would discuss a personal problem with) and for person peers felt comfortable and at ease with. Students comparable to HEPs in social adeptness but having average HEP scores were to be assigned to the other section, i.e., the other experimental section was to be a "control group" fairly representative of the population of the rest of the dorm. (It was tentatively planned to have two sections with different proportions of HEPs to create two levels of positive social atmosphere, in addition to the control group, but this turned out to be not feasible.)

This experimental design was followed, but with some exceptions. Some of the problems involved in carrying out this plan effectively are referred to in Appendix E. But those which clarify the experiment as it actually turned out will be described here--both to clarify the procedure of this particular experiment, and to supplement Appendix E in illustrating some rather typical problems encountered in doing a field experiment.

For several reasons the number of students participating in the experiment had to be reduced. These included the following. The research project was delayed due to red tape involved in negotiating the contract, after the project was approved and a timetable set. This delay allowed too little time to assemble relevant research staff, prepare measures and checkout computer programs, make and check administrative details involved in the logistics of testing, interviewing, and switching students to different rooms. Students, when signing for university housing before arriving on campus, had been informed that they may have their room changed after fall quarter. However this was not communicated nor repeated clearly enough nor strongly enough. So students were reluctant to participate for concern about having to move. The dorm administrative staff was loaded to capacity with other duties. Although the relevant administrations had agreed to the experiment originally, as the time grew closer the problems of moving students and other related problems loomed larger, and there was relatively little administrative time available for facilitating the experiment.

Perceiving this situation, the project director decided to limit the number of experimental sections to two, and use smaller sections than planned. In each section there was to be one Proctor (upperclass section advisor, in charge of a section of the dorm) and one Argonaut (sophomore volunteer living in each section of the dorm to be an informal advisor to freshmen). On the basis of ratings they were comparable for the two experimental sections. This left only 29 spaces for students in one section, and only 27 spaces in the other section. These two sections, one on the third floor and one on the second floor of the dorm, were identical with the exception of one section having one more double room than the other. One section was directly over the other, in a wing of the dorm that was somewhat isolated from the rest of the dorm by being in a different wing. The section with 29 student spaces was selected as the Experimental Section for the positive social atmosphere, since this allowed somewhat more leeway of defining the independent variable by assigning a large proportion of HEPs to one section.

Two questionnaire booklets were administered to most residents of the large dorm used for the main research. Of approximately 500 students in the dorm, more than 400 were freshmen. Booklets were administered between the sixth and eighth weeks of the quarter, with approximately 90% rate of return from freshmen. However some questionnaires not completely filled out had to be eliminated. Procedures are described further in the main body of the report, and instruments and variables are described in Appendices A and G. With the exception of social interaction measures to be described below, the academic adjustment and social-emotional adjustment variables were the ones described for the field study reported in Appendix G.

In brief there was a booklet of Descriptive Rating Forms on which each student was to rate his roommate, approximately five-six residents of nearby rooms, and himself. Mean peer rating received on the HEP scale was used to select students for the independent variable. Self ratings and peer ratings on social-personal adjustment were also obtained from this instrument. The Social Adeptness scale (composed of characteristics such as clever and witty, persuasive, athletic) was used to match controls with HEPs.

Several self report measures of social-emotional adjustment were obtained from a personality inventory: Social Adjustment, Happiness, Roommate Compatibility, Lack of Anxiety, Lack of Chronic Worry, Lack of (physiological) Symptoms. A composite of three subcategories of academic adjustment were also obtained from this instrument--Satisfaction with Academic Achievement, Ability to Concentrate on Studies, Enjoyment of

Studies and Courses. For all subjects with complete enough data scores were obtained on a composite of items from the social-emotional adjustment realm and from the academic adjustment realm.

Data from the various questionnaires and ratings were processed by computer, then relevant scores chosen from inspection of the computer printouts. A slight delay in administration of questionnaires, delay of some students in returning them, and further delay from problems with the computer program--the kinds of problems frequently encountered by others but crucial when the timing is close--left relatively little time for selection of participants.

On the basis of scores on the HEP scale individuals were tentatively selected as "influencers" to create the positive social atmosphere of the "Experimental Section," as described above. A comparable number of individuals were selected as "control influencers" for the "Control Section"--individuals with scores comparable to the HEPs on the Social Adeptness category, but below the criterion required for HEPs on the HEP scale. "Subjects" for both sections were selected from all levels of those individuals below the 75th percentile of social-emotional adjustment and below the 75th percentile of academic adjustment. Since participation was to be entirely voluntary, approximately twice as many individuals in each category as needed were selected.

At the end of fall quarter, students tentatively selected for Experimental and Control sections were interviewed and asked if they would be willing to participate in an experiment which consisted mainly of repeated measures of personality and student interaction. They were not informed of being especially selected, and special care was taken to avoid having them feel singled out in any way. Approximately 65% of the students interviewed were willing to participate; since an overselection of all categories had been made there were enough students to fill all of the experimental spaces. There were two people who moved out of each section during the course of the experiment (winter quarter and spring quarter), leaving 29 and 25 participants for the duration of the experiments. On the basis of their original designation there were 14 HEPs and 13 subjects in the Experimental Section, and 12 Controls and 13 subjects in the Control Section.

Although the composition of the various sections approximated the requirements for the experiment, they were less than ideal. In order to obtain the participation of several students needed to fill out the quotas for the various categories it was necessary to allow two pair of students in each section keep their same roommate. There were also several students willing to participate if they could be in the same section with other people they knew. This "bargaining" was approximately the same for both sections. However it did not allow for random assignment of subjects to both sections. The majority of the subjects were assigned so as to have approximately equal adjustment means in both sections. However this was based upon the preliminary composite adjustment categories.

In terms of the final adjustment categories, based upon further factor analyses of the personality inventory, the 13 "subjects" in the Experimental section had somewhat higher fall quarter adjustment scores than the 13 "subjects" in the Control section; however subjects in both sections did have lower adjustment scores than average for the dorm, as planned. The "control influencers" entering the Control section did have comparable scores (with HEPs) on Social Adeptness, but lower HEP scores, as planned. Although HEPs were selected only on the basis of HEP scores and sociometric choices for therapeutic roles, their social-emotional adjustment and academic adjustment scores were above average for the dorm, while social-emotional adjustment scores of Controls were about average for the dorm.

In brief, we had the relative difference planned between Experimental and Control sections, with a large proportion of HEPs in the Experimental section to engender positive social interaction. Considering all residents of the Control section as a group, they were approximately comparable to the rest of the dorm. However, considering all residents of the Experimental Section as a group they started off somewhat higher than the Control section in adjustment, as well as in composition of Health-Engendering Personality. The only way to evaluate the results of the experiment, then, was in terms of change of adjustment from fall to spring. The number of subjects for this comparison were all too few, unless dramatic differences should emerge.

At the beginning of the winter quarter, students formerly occupying rooms in the experimental sections were transferred to other rooms in the residence hall, and the experimental subjects were transferred to the experimental spaces.

During the winter and spring quarters descriptive ratings and self-report adjustment measures were repeated, as well as obtaining subjects' responses to several standard personality inventories. Several measures of social interaction were obtained including sociometric choices, subject's estimates of time allocated to various activities, and time spent with various peers in and out of the residence hall.

Results

Failure of several subjects to complete all the self report measures in the spring quarter further reduced the size of the sample for analysis of some variables. However from the data available on several self-report measures of social-emotional adjustment and academic adjustment and on grade point average (GPA), we did not find consistent significant differences in favor of the Experimental Section. As described above, the Experimental Section started out higher on self report measures of adjustment, and slightly higher on grades. Although they were significantly higher in the spring, they had shown no improvement relative to the Control section, only maintained the initial difference. When we analyzed the peer ratings on adjustment of "subjects" from Experimental and Control sections, there was a significantly greater improvement in experimental subjects. However, this could be accounted for by the fact that a large proportion of HEPs were included among their raters, and it has been found that HEPs tend to rate (perceive) others more favorably in general.

On the other hand, the students originally designated as HEPs (as a group) had lower HEP scores in the spring than in the fall. This was a dramatic first hand lesson in that "regression to the mean" spoken of by statisticians. This regression of HEP scores may be accounted for largely by the fact that several of the people originally designated as HEPs had been rated in the fall by special friends who "gave them a good score" and by some happening to be rated by people with favorable response sets, in addition to any real changes in health-engendering behavior. However, as a group, the original HEPs still had significantly higher HEP scores (than others) in the spring. From the original group of 14 tentative HEPs, nine were designated as "final HEPs" on the basis of spring HEP scores and choices from peers for therapeutic roles. Thus, the relative health-engenderingness of the Experimental and Control sections had been maintained.

In spite of the failure to find clearcut differences in improvement of adjustment and grades, there is evidence that a "positive social atmosphere" was created by the presence of a larger than usual proportion of HEPs in the Experimental Section. The most significant difference between the two sections was the pattern of social interaction. The students in the health-engendering section spent considerably more time (than those in the control section) interacting with other students within the section. Each student was asked to indicate how much time he spent with every other member of his section in informal social activity on a typical day and on a specific day. The main score used was number of people with whom the individual spent one hour or more. For the health-engendering section the mean was more than twice as large as the mean for the control section (3.86 versus 1.14 spring quarter, 3.65 versus 1.86 winter quarter), the difference statistically significant well beyond the .001 level. When number of people spent half-hour or more per day was used as the measure the difference was maintained (8.18 versus 2.09 spring quarter, 7.28 versus 2.92 winter quarter), this difference also significant well beyond the .001 level. Following is another way of making the comparison of within section interaction. There were 11 people in the health-engendering section who reported spent time (half hour or more) with seven or more people from their own section on a typical day, while there was no one from the control section interacting with this many people from own section.

However residents of the health-engendering section spent time with fewer people outside of the section (mean of 1.43 versus 3.18 spring quarter, 1.83 versus 3.00 winter quarter for people spent one hour or more with outside of the section), this difference also significant beyond the .001 level. Experimental Section subjects were also less likely to join a fraternity--only two, compared with seven from the Control Section.

In summary, it appears that there was a positive social atmosphere created by the HEPs, at least in terms of the residents satisfying their needs for social interaction within the section. Typical activities included bull sessions, card playing, music (e.g., playing guitars and singing), as well as some joint study sessions. Although the time involved in social interaction may have interfered with grades, answers from the students and observations indicated that the study atmosphere was favorable in terms of general noise level and lack of major disturbances. Although the majority of students in the Control Section also reported more satisfaction with their new section than their original section of the dorm, this form of answer was more characteristic of answers (to open end questions) from students in the health-engendering section. The favorable atmosphere for social-emotional development expressed in those answers was consistent with the pattern of social interaction within the Experimental Section described above.

Apart from changes in self report and peer ratings, there may have been a "sleeper effect" from the positive social atmosphere, in the form of a strong criterion of adjustment to college--remaining in college versus becoming a dropout. For this program of research students who failed to return to the university the following fall were defined as dropouts. From the Control Section there were six dropouts among the 25 residents in the section--24%, which is a slightly lower percentage of dropouts than for freshmen university-wide. In comparison, there were only four dropouts from the 27 residents of the experimental section--15%. Although this difference would not be considered statistically singificant for such small samples, this finding is consistent with the field study reported in Appendix G, in which students with health-engendering roommates were significantly less likely to become dropouts (than other students).

Discussion

Following are quotes from several students' answers (to open end questions) which are fairly representative of the Experimental Section with the positive social atmosphere. The first several quotes illustrate the favorable social atmosphere they perceived, compared with their experience in their original section fall quarter. Not only did they express more satisfaction with their new section, but also more satisfaction than found by students in the Control Section.

> The people are much friendlier than the ones in my former section.
>
> I knew very few people last quarter and didn't socialize much. Now I know more people.
>
> In the old dorm section I knew about one tenth of the people I know now. The amount of social life has increased and encompasses broader fields.

> I was not satisfied fall quarter with my ability to make friends. I could make friends with people I met in classes or somewhere, but I didn't know many people on the floor I lived on. It is different this quarter. I know almost everyone now on my floor and make friends a lot easier than when I first came down here.
>
> I like this section much better.
>
> I am a lot happier than last quarter.

Although there was a great deal of positive social interaction engendered in the Experimental Section, noise and major disturbances were held down, reflecting the general atmosphere of consideration for others and interpersonal warmth.

> It is quieter here than in my old section. Where I used to live ... in the hall yelling and carrying on.... Everything settles down here around 8:00.
>
> There seems to be a much better atmosphere for studying--fewer distracting noises.

Although this was the view of the majority of the students, those who had lived in quiet sections fall quarter saw little difference. On the whole, the study atmosphere did seem to be more favorable here from the standpoint of the general noise level and consideration for others. However the frequent socialization had a subtle negative effect upon study atmosphere--students were too reluctant to protect themselves from interruptions when neighbors came to socialize. Especially the subjects whose previous social experience had been inadequate, seemed to have a high need for socializing. The bull sessions and card games tempted them from their studies too much. This is illustrated by the following quotes, which come from the same students who made the above comments about better social relations and quieter conditions for study.

> The amount of favorable time for studying hasn't increased.
>
> I do not study as much now as I did last quarter, because of the socializing.

The same theme is carried forward in the form of suggestions about achieving a better balance between socializing and study.

> The social life should be equally mixed with the study life.
>
> A definite (study time) should be established and enforced.

> Less time should be devoted to trifle diversions, such as cards, and more time spent on projects that will help the individual develop mentally and socially.
>
> Most of the changes that may need to be made will probably have to be initiated by the individual members of the section.
>
> Collective study organized by the members would certainly help both the weak and the strong students.

In summary, there was considerably more social interaction within the Experimental Section, probably due to the large proportion of health-engendering people. The subjects who had found inadequate social experiences the previous quarter were included in this informal social interaction. Most of it seemed to be of a positive nature, in terms of the companionship and friendship. Consideration for other was reflected in a relatively quiet study atmosphere (compared with the noise and disturbance of other sections). However, this was offset by too frequent socializing, which interrupted study and tempted others to abandon their study to participate. The average amount of time spent studying was comparable between the experimental and control sections. With this picture of social interaction we would not expect a difference in grades. However it is surprising that there was not more improvement in the scores on social-emotional adjustment variables in favor of the experimental section with the positive social atmosphere.

The fact that these differences weren't apparent in the objective self report measures may be accounted for, partially, by several factors. (1) There were several subjects in the Control Section who were originally low on most measures, who simply did not complete the forms in the spring quarter. From observations their social-emotional adjustment appeared poorer than those who did complete the self reports, but they did not have scores to include in the analyses. (2) Subjects in the Experimental Section may have been better off spending more time out of the section, broadening the base of their social relations. Close, accepting interpersonal relations "at home" are important for awhile, especially for those who have lacked them in the past. But after this security is reached, a wider range of social activities is needed in one's social-emotional development. The lack of improvement in the self report measures of adjustment may have reflected dissatisfaction with this limited social base; while the improvement shown by these subjects in peer ratings of adjustment may have reflected their improved interpersonal relations and lack of shyness within the section. (3) Also, when people develop more "open" personalities and become more open in their interpersonal relations, they become less defensive. Subjects in the Experimental Section did appear to become more open--this may have reduced the defensiveness in responding to self report items, in comparison to greater defensiveness shown in their earlier self reports. (4) However, the main burden of explanation (for lack greater improvement in scores on social-emotional adjustment variables) should be attributable to the relatively small samples and lack of more clearcut experimental and control conditions in assigning subjects to conditions. With this circumstance only dramatic improvements would become clearcut, as was the case with the measures of social interaction within the section.

Student Interaction in the Experimental Section--Implications for Academic Achievement:

To summarize the field experiment, there was a great deal more social interaction within the Experimental Section (than within the Control section of the dorm). According to observations, interviews,and students' answers to open end questions this was a positive social atmosphere, influenced by the presence of Health-Engendering Persons (HEPs), and characterized by friendship, open communication, and consideration for others. Social interaction within the dorm section was so satisfying that the residents spent significantly less time in social activities outside of the section. Although their social development was probably enhanced by the positive social atmosphere within the section, they may have benefited more, later, by some influence to participate in a wider range of social activities. Although substantial improvement (compared to a control group) was not found in self report measures of social-emotional adjustment, there were various factors which mitigated against clearcut findings in this area. In a field study with a larger sample in the same dorm (reported in Appendix G) there was a significant relationship between health-engendering personality and social-emotional adjustment of roommate. In the field study and the Experimental Section described above, the presence of a positive social atmosphere engendered by HEPs had an influence which increased the chances of staying in college and not becoming a dropout. Yet in the field study and the field experiment, there was no apparent effect of HEPs upon the academic achievement of their associates. It is possible that they would have such a long range effect, after the social-emotional needs of their associates have been met to a greater extent. But for now, the main concern is in differentiating the immediate effects upon social interaction compared with academic achievement. The following description of social interaction in the Experimental Section is intended (a) to clarify the influence of HEPs upon others, and (b) to describe social factors which influence studying in all parts of the dorm, but which were more apparent in the Experimental Section.

Many times we find that a student who wishes to improve in his social adjustment and works at it does so at the expense of his academic achievement; and vice versa to an extent. Learning about other people and how to get along with them cooperatively and without anxiety is (or should be) an important goal of education in itself. But academic achievement, or the learning which it is supposed to represent, is the primary purpose of college. Why did the positive social atmosphere not contribute to academic achievement of the residents?

Health-engendering students, who constituted the main independent variable, were selected on the basis of traits such as consideration, warmth, and trust. These are socially relevant traits which are uncorrelated with grades. There is no reason to expect students in the health-engendering section to spend more time studying than those in the control section. And, from systematic data from the students there was little difference in study time between the two sections. It had originally been hypothesized that a successful "health-engendering atmosphere" would contribute to academic achievement by alleviating anxiety and satisfying social needs of the students in the section. It is quite possible that if the experiment could have been continued longer the students in the health-engendering section would have consolidated their social adjustment, felt less need to socialize, and focused more upon their studies.

But for the duration of the present experiment, it appears that an important ingredient was missing. This was the lack of an appropriate "study atmosphere," i.e., there was no special emphasis upon or example of studying. In fact, the high degree of social interaction appears to have interferred with study time during the experiment. Most of the students from the health-engendering section reported that the social atmosphere was more friendly than in sections of the residence hall in which they had lived during the fall quarter. But little studying was done in the rooms because there was too much socializing going on. Those who did study very much left the dorm. In comparison, students in the control section lacked the social advantages of the positive social atmosphere, but it was easier for them to study in their own rooms.

Apart from the HEPs selected as the main experimental condition, subjects in the experimental sections were selected as having more than their share of difficulty in social and academic adjustment. As will be shown in Appendix L, (involving sources of happiness) social adjustment is a far more pressing need to most freshmen than is academic adjustment. Although academic achievement is important to them, especially around test time, the need for social acceptance is with the student most of the time, especially since the social life of freshmen revolves to such a great extent around the dorm. In summary, we have one set of students in the health-engendering section (HEPs) who are socially oriented and selected on the basis of characteristics considered relevant for filling social needs of others, i.e., consideration, warmth, and trust. The rest of the students in the section were selected as having especially strong social-emotional needs. It is not surprising then that it was the social interaction variable that had the greatest influence among the students in the health-engendering atmosphere. It appears then that the resources to satisfy one set of needs (social-emotional) hampered the satisfaction of other needs (academic achievement). This points up the need for more of a study atmosphere, along with health-engendering neighbors.

With the foregoing in mind the following picture emerges. When the time came for studying, students found socializing with other students in the section more satisfying than studying. Students who were able to resist the initial temptation to socialize rather than study were distracted by friendly visitors to their room, and were reluctant to reject the visitor. As test time approached, students started developing feelings of anxiety. There are two alternatives for relieving such anxiety. The most direct alternative is to make task responses, in this case do the studying that will prepare oneself for the test. The other alternative is to avoid (or avoid thinking about) the anxiety producing situation. Either procedure will relieve the anxiety. For students in the health-engendering section it was so easy to find satisfying social interaction to relieve the anxiety that the other alternative (study) was less potent, except the night before a test when it was really too late.

The same situation applies to students in other sections as well. Motivation to study is borderline to begin with. Studying requires effort and/or becomes boring. Thinking about studies evokes anxiety. Yielding to interruptions and temptations to socialize is reinforced by relieving the boredom and anxiety. However this puts the student "behind the eight ball" later, when he realizes that he is not adequately prepared in his studies. This accounts for the frequent worry about studies expressed by students. But then it is too late, or the worry itself all too frequently gets relieved by alternative activities rather than tackling the studies.

Although assignment of health-engendering people to a dorm section may create a positive social atmosphere, other ingredients are needed to make this an effective study atmosphere. Simply making students aware of this situation, and the need to avoid procrastination and social distractions is one way. Physical facilities more conducive for study is another needed ingredient. Leadership in developing social norms that balance socializing and study is still another needed ingredient. (These are discussed in more detail in Appendix M.) Still another needed ingredient is more support for and influence from the more responsible student, who can serve as a model of effective study habits for others to follow and can provide some leadership in establishing an effective study atmosphere. (This is discussed further in Appendix F.)

Appendix K

Social Interaction, Social Adjustment, Homesickness, Underachievement, Student Responsibility, and Other Aspects of Adjustment to College

This report includes several sets of data, each pertaining to some aspect of the broad topics of Social Interaction and Adjustment To College. Each set of data will be described and discussed more-or-less separately from the others. Samples and analysis procedures are described in the various parts of the reports. Variables are ones described in Appendix A, or are described in the various parts of this report. Some of the data in this report is limited, to a greater extent than in other reports, to freshmen. However there are parts which, to varying degrees, are relevant for upperclass students as well.

Social, Emotional, and Academic Adjustment:

As an introduction we may consider three main aspects of adjustment relevant for college students--social, emotional, and academic. Here we are referring to the job of being a student, getting one's studies done effectively, learning. Although the emotional aspect is usually considered with the social for various studies in this program of research, we shall see below that concern over studies can also provide quite a bit of emotion.

From the correlation matrices in Appendix A, we find that there is little empirical relationship between social adjustment and academic adjustment (when measured by self-report and peer ratings), and that the correlation between social adjustment and grades hovers around the .00 level, or even slightly to the negative side of zero. This is a quite consistent finding for several aspects of social adjustment, measured in several different ways. This finding does not mean that a student who is well adjusted socially is likely to have poor academic adjustment, nor vice versa. It simply means that the realms of social adjustment and academic adjustment are independent--that a person's standing in one realm cannot be predicted from his standing in the other realm. This is contrary to two opposing viewpoints, each having its endorsers--(a) that academic adjustment suffers if one is to achieve good social adjustment, (b) that the person who is well adjusted socially is an effective person who will also have good grades.

As will be shown below, certain forms of participation in social activities are relevant to academic adjustment, but this social participation is not synonomous with social adjustment. One implication of the independence of the social and academic realms is that this information might be useful to communicate to students, pointing out that both are important. The zero relationship over all subjects, however, does not tell the complete story. For example, there are cases in which a person with poor social adjustment lets anxiety or depression from this source so debilitate him that his studies suffer. However this is balanced (in the zero correlation coefficient) by the student who compensates for lack of social satisfaction with diligent study, which is reflected in high grades. For the former student improved social adjustment is necessary for academic survival. The latter student, like many creative and productive people in the larger society, is able to survive and contribute while maintaining relatively poor social adjustment. But this does not mean that social adjustment is unimportant for him. Hopefully a college education can be structured so that it facilitates the social adjustment of both types of students described here.

These cases illustrate the fact that data summarizing large groups in parsimonious fashion may leave much information uncovered. An important task for future research will be to clarify the relationship between social adjustment and academic adjustment, for various personality types and categories of students, and ways in which both social adjustment and academic adjustment may be enhanced.

Initial and Later Social Adjustment of Freshmen:

As a group, freshmen achieve a satisfactory level of social adjustment by the end of fall quarter, and maintain or increase this when measured spring quarter (when measured by self report and peer ratings). The data in Table 1 shows social adjustment considered from a relative point of view--three aspects of adjustment during fall quarter compared with those same aspects of adjustment back in high school, and during the spring quarter a comparison of adjustment then with adjustment back in the fall.[1] Although the majority of students indicate that they enjoy social activities more during their first quarter of college than back in high school, they tend to feel less successful and less well accepted by others than the social success and acceptance found back in high school. Other data indicates that it is mainly participation in bull sessions and card games in the dorm, and attending university football games on weekends, that provide the main sources of social satisfaction.

In terms of absolute level of adjustment, freshmen (as a group) feel fairly well accepted and fairly successful in their social relations, and derive a good bit more satisfaction from their social relations than from their studies. In spite of this successful social adjustment, it is not surprising that they feel less successful and less accepted during their first quarter of college than in the old, familiar home setting back in high school. As seen from the bottom part of Table 1, when asked the questions about relative social adjustment in the spring, the majority of students reported more success and acceptance in social relations then than back in the fall. This fits expectations that social adjustment in a new setting is a cumulative process--over time

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[1] The data is reported in terms of percentage of subjects answering each alternative, for each item. This data was obtained from a sample of 147 freshman men, with complete data fall and spring, fairly representative of the parent population.

Table 1

Frequency Distribution of Answers to Relative Social Adjustment Items

Fall:

How have you found participation in social activities here at the University compared to the satisfaction you found from social activities back in high school? (Informal gatherings, conversations, extracurricular activities, etc.)

14% (1) enjoyed social activities much more in high school
19% (2) enjoyed social activities somewhat more in high school than here
20% (3) about the same here and in high school
24% (4) enjoy social activities somewhat more here
23% (5) enjoy social activities much more here than in high school

Do you feel more accepted by other students here at the University, or did you feel more accepted by other students back in high school?

10% (1) felt much more accepted in high school
18% (2) felt somewhat more accepted in high school than here
50% (3) about the same here as in high school
16% (4) feel somewhat more accepted here
6% (5) feel much more accepted here than back in high school

Do you seem to have more success in your social relations here at the University, or back in high school?

16% (1) much more successful in high school
22% (2) somewhat more successful in high school than here
37% (3) about the same here and in high school
20% (4) somewhat more successful here
5% (5) much more successful here than in high school

Spring:

How have you found participation in social activities this quarter compared to the satisfaction you found from social activities fall quarter? (Informal gatherings, conversations, extracurricular activities, etc.)

8% (1) enjoyed social activities much more fall quarter
7% (2) enjoyed social activities somewhat more fall quarter than this quarter
31% (3) about the same this quarter as fall quarter
26% (4) enjoy social activities somewhat more this quarter
28% (5) enjoy social activities much more this quarter than fall quarter

Do you feel more accepted by other students here this quarter, or did you feel more accepted by other students fall quarter.

2% (1) felt much more accepted fall quarter
3% (2) felt somewhat more accepted fall quarter than this quarter
37% (3) about the same this quarter as fall quarter
30% (4) feel somewhat more accepted this quarter
28% (5) feel much more accepted this quarter than fall quarter

Do you seem to have more success in your social relations this quarter or fall quarter?

1% (1) much more successful fall quarter
3% (2) somewhat more successful fall quarter than this quarter
36% (3) about the same this quarter as fall quarter
31% (4) somewhat more successful this quarter
29% (5) much more successful this quarter than fall quarter

one continues to make new friends until some optimum number is reached, and has increased opportunity for being selective about friendships. According to Table 1, the majority of students also report more enjoyment of social activities in the spring than in the fall. According to other data, by spring quarter freshmen tend to look to the dorm somewhat less for their social satisfactions and turn outward more (with a slight to moderate increase in satisfaction from dating and extracurricular activities).

Although the majority of students make at least a moderately successful social adjustment, there are still a sizeable number for whom social adjustment is a major problem. This is illustrated by the following quotations from students' answers to open-end questions (in which they were free to mention any kind of problem they may have encountered, including things pertaining to studies, the environment, etc.).

> Last quarter most all the people I stayed around were from my home town. I wish I had made more friends.
>
> The main problem was making friends (male and female). I was alone almost all the time last quarter and knew very few people.
>
> I have found that it is sometimes difficult to make deep friendships. I have met a lot of people at college and find that there are only but a very few who feel the way I do about matters which are important--such as religion and morals.
>
> Last quarter I did not have one real date. I wish there were some ways to improve my social status.
>
> Another problem I have is in my social relations. I don't have any trouble meeting boys, but girls are a problem. When I am around girls I can't think of anything to say. When I do say something it sounds out of place when I think about it later. This is one part of me that I would really like to see changed. I don't know if it is because of my lack of self-confidence or shyness, but I become very angry with myself at times because of this.

Stress from Studies:

During the first week of winter quarter, an open-end questionnaire was administered to a sample of freshman men asking about things that concerned them the most during their first quarter of college. Table 2 shows the results of a content analysis of the answers from a sample of 27 students representing all areas of a large men's dorm. There were 26% of the subjects for whom a social problem was of major concern. With some subjects describing more than one social problem, the average for the sample as a whole was .66 social problems per subject (expressed as 66% in Table 2). However, study problems were more prevalent--74% of the subjects indicated a study problem as a

Table 2

Frequency Distribution of Things Which Concern First Quarter Freshmen (Which They Would Like to Change)--Each Area In Terms of Percentage of Times Mentioned Per Subject

66%	Social Problems:	
	26%	Peer Relations--difficulty making friends or joining bull sessions, self-conscious
	7%	Need for privacy
	7%	Roommate incompatibility
	7%	Lonely, homesick
	19%	Women--lack of opportunity for dating, not able to relate well with women students
151%	Study Problems:	
	26%	Distracted by noise in dorm, need quiet
	7%	No place to study
	7%	Interruptions when studying (by other students)
	33%	Study habits
	11%	Difficulty concentrating
	19%	Socialize when should be studying, given in to temptation to socialize after starting to study
	11%	Lack of interest in studies
	26%	Just not study, procrastinate, fall behind
	11%	Dissatisfied or worried about exams or grades
11%	Registration, scheduling of classes	
22%	Other (all other combined)	

Note.--Number of subjects included in this content analysis was only 27, so the smaller percentages especially should be interpreted with caution. However these students represented all parts of the large men's dormitory and their answers were fairly representative of a larger sample of 50 students. The figures in the table might be expressed more appropriately as ratios, but were expressed as percentages to be consistent with the form of data in other tables summarizing content analyses. The 151%, for example, means there were 1.51 Study Problems mentioned per subject. The 66% means .66 Social Problems mentioned per subject. Since there were more than one study problem and/or social problem mentioned by some subjects it is also appropriate to consider number of subjects mentioning each type of problem. There were 20 of the 27 subjects (74%) who mentioned at least one study problem, and 7 of 27 subjects (26%) who mentioned at least one social problem. Subjects' answers were obtained during the first week of winter quarter in response to the open-end item reproduced in the following paragraph.

Most students find that they are not completely satisfied in college and have some things about themselves or their circumstances that they would like to change. This may refer to dissatisfaction with study habits, inability to concentrate or accomplish, lack of satisfying friendships, lack of skill or lack of success in social relations, a feeling that friendships are too superficial or immature and don't contribute to one's own positive development, etc. With this in mind, describe in the space below the main problems you faced last quarter--things about yourself or circumstances that affected you, things which concerned you and which you would like to have changed.

major concern. With some subjects describing more than one study problem, the average for the sample as a whole was 1.51 study problems per subject (expressed as 151% in Table 2). A breakdown of social problems and study problems into subcategories is shown in Table 2. (Further consideration of various categories of study problems is given in Appendix M.) There were relatively few problems described in other areas, although all answers were considered in relation to a broadly inclusive and detailed set of categories.[2]

Toward the end of spring quarter an open-end questionnaire was administered to a sample of women students and a sample of men students, asking students the things they were disappointed or dissatisfied with and which they would like to improve. A content analysis of answers is given in Table 3, separately for answers from 47 women and 119 men students. Although they were not instructed to limit their answers to personal problems, most of them did, with relatively few references to environment or external influences. From Table 3 it can be seen that some form of stress over studies was the most prevalent problem for women and men students. However for women this was expressed mainly in terms of personal limitations in their studying (e.g., difficulty concentrating, inadequate study habits), while men expressed it mainly in terms of dissatisfaction about and worry over grades. Social problems and personal limitations (other than study) were problems which were also mentioned frequently by women, but less frequently by men. Although a subtle difference in the wording of the question may account, in part, for the difference between men and women, it is consistent with the conclusions of Appendix B that women tend (more than men) to be more perceptive and willing to admit negative characteristics.[3] This suggests an important area for further research--information about the extent to which college students, and which categories of students, look within themselves for the resources to accomplish their academic-study objectives. It also suggests the relevance of orienting students toward personal responsibility, effective study habits, and ways of avoiding procrastination and distractions to help them accomplish their academic-study objectives.

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[2] A broadly inclusive and detailed set of categories was developed from several hundred student answers to various open-end questions--those questions for which content analyses are described in this report and in Appendix M. Quotations from students' answers were liberally used to illustrate each category. The category system actually evolved gradually until all answers seemed adequately categorized. This resulted in a 26 page manual of categories, subcategories, and quotes to illustrate them. This was used as a guide for final content analyses, with all categories considered for coding of answers to all questions. Satisfactory intercoder agreement was reached. Categories not appearing in a given table of content analysis were excluded from the table only because answers in those categories did not occur frequently enough to include except under Miscellaneous, and not due to a failure to consider all categories.

[3] Differences in wording of the question to men and to women, as well as more information about the samples, is given in Table 2-k at the end of this report.

Table 3

Frequency Distribution of Responses to Open-end Questions Asking Students About Things They Are Disappointed or Dissatisfied With (Which They Would Like to Improve)--In Terms of Percentage of Women and Men Mentioning Each Area

Women	Men	Women	Men			
31%	16%					Social:
		0%	5%			Dating
		0%	3%			Fraternities and sororities
		2%	1%			Lack of extracurricular
		17%	2%			Friendships
		10%	2%			Other students
		2%	3%			Misc. Social
4%	4%					The Institution
6%	10%					Academic-Intellectual:
		4%	2%			Professors
		2%	7%			Courses
		0%	1%			Cultural activities
70%	65%					Stress Over Studies:
		2%	0%			Demands on time
		6%	51%			Grades--dissatisfied with, worry about
		62%	13%			Personal limitations in studies
				0%	6%	Not studying enough
				26%	0%	Difficulty concentrating
				28%	3%	Study habits not adequate
				4%	2%	Not motivated to study
				4%	2%	Misc.
		0%	1%			Misc.
6%	0%					Study Atmosphere
26%	13%					Personal Limitations--for example: too sensitive, depressed, my figure, loss of personal identity, concept of failure, did not make the team, no drive, etc.
0%	4%					Misc. and Unclassifiable
13%	15%					None (questions answered "none" or similar)

Note.--Further information about samples and questions may be found in Table 2-k at the end of this report.

Both content analyses agree in finding that study problems are quite salient to men and women college students--grades and factors which facilitate or hinder effective studying are of major concern. This is also consistent with findings of significantly lower means on the Academic Adjustment variable than on the Social Adjustment variable (both were objective self report variables described in Appendix A and used as variables in other reports of this research program). This is also consistent with the findings shown in Table 4--toward the end of fall quarter 61% of the students responded that they worried about their studies "quite often" or "almost all the time," while only 17% reported worrying this frequently about their social relations. Results were approximately the same spring quarter. Although subjects might be more reluctant to admit worry about social relations with peers, than about studies, that could hardly account for a difference this large.

In summary, students' answers to open-end questions and responses to objective items indicate that stress from studies is quite prevalent.

Social Interaction--Positive and Negative Effects:

For the new student at a large university, especially, social life centers around the dormitory and small informal groups that arise there. The opinion of many students is captured in the following quote from a student's paper. "All things considered, I think dormitory life is very beneficial; it is one of the most significant factors in getting an education." Answers of students to an open-end question asking for descriptions of informal groups in the dorms, in Table 1-k at the end of this report, provide quite a bit of insight into the nature of this social interaction.

A sampling of students were also asked to describe positive effects and negative effects which students have upon the social relations and social development of other students. The remainder of this section consists of a series of quotes from their answers, with introductory and interpretive statements by the author.

Students may provide a useful source of emotional support for their peers. This seems especially important to someone in a new setting, especially important to freshmen away from home on their own for the first time.

> Other students really fill the gap that might result from being away from one's family. They help each other, console each other, correct each other, and learn from each other. Often little emotional adjustment is necessary, but if it is, students certainly help each other bring it about in the above ways. Having so many close friends lessens greatly personal and emotional problems that might develop.
>
> When I have been buried by a ton of worries there has been other students who comforted me.

Table 4

Frequency Distributions of Worry about Studies and Worry about Social Relations

Answers (frequency of worry)	Worry about Social Relations		Worry about Studies	
	Fall	Spring	Fall	Spring
Almost all the time	3%	2%	17%	10%
Quite often	14%	12%	44%	45%
A moderate amount	29%	23%	25%	33%
Occasionally	41%	44%	14%	10%
Not at all	14%	20%	0%	2%

Note.--The questions were worded as follows: "How much do you worry about your social relations with other fellows?" and "How much do you worry about your studies and course work?" Subjects indicated answers to both questions by marking one of the five alternatives above (forming a five-point itemized rating scale). A question asking, "How much do you worry about your future career?," yielded a frequency distribution of answers quite similar to that for the worry about studies variable. The means for these two questions were significantly lower than the mean for the worry about social relations variable (p .001), for the subsample of 147 subjects from which the above frequency distribution came, and from the parent sample of approximately 400 subjects.

Peers may help a person make new friends, bring a person out, increase his range of social activities.

> A person that gets along with others and finds time for social functions generally has a good effect on other students. He encourages others to go to functions with him.
>
> Students can develop a person's scope of friends by helping him meet other students. A well-adjusted person can help maladjusted one.
>
> Extroverts may develop a person positively here by urging a person to go places, by inviting him along; and by introducing him to people (not always the case, however). May also offer advice on various social subjects.

Close social contacts in the dorm provide a good opportunity to learn about other people, different viewpoints, and how to interact with different kinds of people. This social interaction also provides a source of satisfaction, of course.

> College is the best place in the world for social development. One can find every standard of convictions and beliefs and the choice is left up to him.
>
> Meet many people. Learn how to handle people that come from a wide range of backgrounds--just having fun takes away some of the college pressure.
>
> By being exposed to many different types of personalities, a student learns how to live with each one. This is important in social life and later in business life. If a student really wants to get along with others, he analyzes their personality and learns how to act around them.

One way in which a person can have a positive effect upon the social learning of others is by serving as a positive example or model.

> The social activities of individuals are observed and evaluated and often followed by many other students.
>
> A person that seems to know what he is doing and doesn't look like he's lost gives the impression to others that he is well adjusted. This helps them see how they should act and adjust.
>
> Through other students I have learned more about styles and etiquette.

Peer influence can also have a negative influence upon social adjustment and development. As one student put it, "Some students have a disastrous effect on others."

The negative effect may be in the form of behavior which a person cannot accept. In some cases the non-acceptance may be justified by the excesses of others.

> A student may find that many of his companions do things which he does not like; i.e., drink, smoke, curse, etc. It is possible for a student to be turned against social functions because of the fear that he will be thrown against these things. He could try to shut himself away from others.

Hopefully, young people who have had limited experience with others will be able to learn about the seamy side of social realities, without necessarily having their own adjustment affected in a negative way.

One prevalent way in which students exert negative influence is by their inconsiderate behavior. A form of this is illustrated by quotes in Appendix M, concerning noise and distractions which divert others from their studies and interrupt their other activities. Another way is by serving as a negative example or model. As one student put it, "If students have socially objectional habits they might become part of the social development of the other students who observe this."

Even positive adjustment of a person, when displayed in a prominent and extrovertive manner, may have negative effects upon those whose self-image suffers by comparison. As one student wrote, "Some people that have very successful social lives will give other people an inferiority complex." Some people who are especially shy, or have higher social standards than they can attain, may be able to progress in stages. For example, a person who is very accepting but not otherwise displaying special social assets may be the most health-engendering companion at first. As the shy person comes to feel more accepted and more adequate, he will be able to benefit from a more extroverted companion with more social assets.

On the other hand, there is the danger of students who lack social skills serving to dampen each other if there is no one else to provide a more positive influence.

> A person who always stays in his room and never takes part in any activities is hindering his experience at college and generally gives a bad impression to others.
>
> An introvert may deaden the social development of a person by killing desire to do things--dampening enthusiasm. Extrovert may do so by crushing a person in feelings of inferiority. Also unless a person makes someone feel inferior this doesn't seem to be too prevalent.

Following are answers by two students of ways in which peer influence may have positive effects upon the social and emotional development of others.

> Getting away from home and one's parents is a big step in most people's lives. Constant association with other people prevails more than in the days of high school. These new friends seem to develop one's personality and bring him to reality with the world around him.
>
> These, I believe, help take a lot of pressure off a student's mind, especially a new student.

These appear to be positive forms of interaction. Yet too much of a good thing can have bad effects. And it often turns out that way with the freshman who has strong social needs and lacks sufficient academic motivation and study habits. The "constant association with other people" can make one too dependent upon others. Taking "a lot of pressure off a student's mind" through social interaction may be a nonadaptive way of reducing pressure associated with studies, when it would be more appropriate to master the assignment. This influence is indicated in the following two quotes, as well as by the quotes in Table 1-k and in Appendix M.

> There is too much pressure on the individual to conform with the herd. I find this very evident in girls and boys who come to college without a great deal of old friends, they are forced to conform before they will be accepted, instead of being accepted for what they are.
>
> Social relations are often carried a little too far. There is always the constant pressure of being in the in-crowd, and I think this factor flunks out more people than anything else. Fraternities are a common pressure put on individuals.

The influence may carry over to later life, as implied in the answer of the student who wrote, "When too much socialization takes place on week nights married students find it hard to study and stay at home." It is probably more common for the influence to occur in more subtle ways, by developing overdependence upon others, stifling responsibility and independent thinking.

In summary, the frequent social interaction in the dorms can and does have a positive influence upon various aspects of social development. Yet for the typical college student there is too much reliance on these informal groups, not enough emphasis upon individuality and academic activity. This information provided to students could help balance the picture. Physical facilities and leadership also are needed to provide a sufficient number of informal social groups (such as those that occur so frequently and are described here), while providing opportunities for more mature forms of social activity and relief from the constant pressure to socialize.

Homesickness as Relative Deprivation:

The following question was asked of a large sample of freshman men. "Since coming to the university how much of the time have you felt homesick?" Subjects responded by marking one of the alternatives forming a five-point itemized rating scale. Data was collected approximately three weeks prior to the end of fall quarter and approximately two weeks prior to the end of spring quarter. Following are frequency distributions of answers obtained from a sample of 147 students having complete fall and spring data, and fairly representative of the parent population--frequency distributions in terms of percent of subjects responding with each alternative.[4]

Fall	Spring	
1%	0%	(1) all of the time
7%	4%	(2) much of the time
9%	8%	(3) some at first, but less recently
34%	30%	(4) occasionally
49%	58%	(5) rarely

Although 34% of the students admitted feeling homesick "occasionally" in contrast to "rarely" (the most positive alternative they could have responded), there were very few subjects indicating more frequent feeling of homesickness.

It was hypothesized that homesickness is related to current social adjustment, but that it is mainly a function of relative social deprivation, i.e., social adjustment at college relative to the level of social adjustment achieved back home in high school. This hypothesis was tested by correlating the Homesick variable with a Relative Social Adjustment variable (the mean score of the three items shown in Table 1 comparing social adjustment in college with social adjustment back in high school), and with a variable measuring current level of Social Adjustment (composed of the mean score of 12 items pertaining to various aspects of social adjustment and described more fully in Appendix A). In the fall Homesickness was correlated .34 with Relative Social Adjustment and .28 with Social Adjustment for a sample of 295 freshmen. Both correlations were statistically significant beyond the .001 level. The difference was in the predicted direction, but too small to be statistically significant. It is also consistent with the hypothesis that Homesick was correlated higher with Relative

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[4] Scores for individual subjects were in terms of the point on the five-point scale defined by the alternative checked, with a 5 meaning rare feeling of homesickness (the "good adjustment" end of the homesick continuum) and a 1 meaning very frequent feeling of homesickness (the "poor adjustment" end of the homesick continuum). A stability coefficient (test-retest correlation) over the six month period from the end of fall quarter to the end of spring quarter of .51 indicated fair reliability for a single item variable.

Academic Adjustment ($r = .15$, $p < .05$) than with current level of Academic Adjustment ($r = .04$) in the fall.

Relative Social Adjustment was composed of only three items, so some of the 12 Social Adjustment items had social content which may have corresponded only moderately with the content of the Relative Social Adjustment items. For this reason correlations were examined for pairs of corresponding items. The content of these three areas of social adjustment--satisfaction from social activities, acceptance by others, and success in social relations--was almost identical except for one member of each pair being worded in terms of relative social adjustment and the other in terms of current social functioning. For example the items in the area of social success were worded, "Do you seem to have more success in your social relations here at the university, or back in high school?" compared with "How successful do you consider yourself now in terms of social relationships?" Response alternatives, of course, were worded appropriately for both realms of social adjustment (relative and current). Correlations of Homesick with the three relative social adjustment items and the three corresponding current social adjustment items are shown in Table 5. As seen in that table, the correlations are consistently higher for the relative social adjustment items than for their absolute social adjustment counterparts. (The hypothesis was not tested with spring data since the relative social adjustment variables did not pertain in the same way to relative deprivation, i.e., in the spring college social adjustment was not compared with social adjustment back home in high school.)

In summary, the hypothesis relating homesickness with relative social deprivation was partially supported. Although the critical differences testing the predictions were not large, one should note that the variance of the Homesick variable was quite constricted, which lowers the possibility of a strong relationship with any variable and thus, perhaps obscuring the magnitude of the predicted difference. The hypothesis still seems tenable enough to make it worthwhile testing it in a setting where homesickness is more prevalent.

Correlations of Homesickness with other variables may be seen in Table 6. Positive correlations mean that lack of homesickness was related to positive adjustment (and conversely that homesickness was related to poor adjustment). It is not surprising that the only two variables with which Homesick was correlated higher than with Relative Social Adjustment were Happiness and Lack of Chronic Worry. There were also small but statistically significant correlations (.14-.20) with all four peer rating variables and both variables pertaining to satisfaction with the university (Attitude toward University, and Satisfied with College Experience).

Table 5

Correlation of Homesick with Three Corresponding Pairs of Items Pertaining to Relative Social Adjustment and Absolute Social Adjustment

Variables	Soc. Adj. Compared with Soc. Adj. in High School	Current Level of Social Adjustment
Satisfaction from social activities	.29	.22
Accepted by others	.22	.06
Success in social relations	.32	.10

Satisfaction with College:

Satisfaction with college was measured by two variables. Attitude toward the University was measured by the mean of subjects' scores on 13 items pertaining to satisfaction with various aspects of the campus milieu--courses, academic requirements, rules and regulations, administration, dormitory, registration, meals, counseling and advising--a fairly representative sampling of those aspects of the campus milieu considered central to the university as an institution. (This variable is discussed further in Appendix D.) Relatively low stability coefficients for individual items (compared with substantial stability for individual items in other realms) indicate that students' experience with any given aspect of the campus milieu may vary considerably from quarter to quarter. However, a stability coefficient over a six month period of .69 indicates that combining of these various aspects into a single variable provides a fairly stable sampling of subjects' generalized attitude toward the institution, which is fairly consistent over time for individuals.

Satisfaction with the College Experience, referred to as Satisfied with College for short, consisted of subjects' responses to the following item.

> On the whole are you getting out of college what you came here for? I am getting:
> (1) so little of what I hoped for, I'm afraid I'm wasting my time
> (2) some of the things I came for, but not nearly as much as I hoped
> (3) enough out of it to make it worthwhile
> (4) most everything, but not completely satisfied in some respects
> (5) everything out of college I came for; I'm completely satisfied

A stability coefficient of only .33 from fall to spring probably indicates students' change in experience with college more than unreliability. (As will be shown below, the magnitude and pattern of meaningful correlations would require higher reliability than indicated by a reliability coefficient of this size.)

Correlations of these two variables with grades and other variables used as standard variables for this program of research are shown in Table 6. Although Attitude toward University and Satisfied with College have only modest correlations with each other (.35 fall, .30 spring), they have similar correlation patterns with other variables. Both variables have significant correlations with all or most of the various self report measures of social-emotional adjustment, as well as with self reports of the Academic Adjustment composite and its components. This rather uniform positive correlation may be accounted for in part by response set (the tendency to rate everything with an optimistic or

Table 6

Correlation of Satisfaction with College Variables (and Homesick Variable) with Academic Adjustment and Social Adjustment Variables

Variables	Homesick		Satisfied w. College Experience		Attitude toward Univer.		N	
	fall	spr.	fall	spr.	fall	spr.	fall	spr.
Grades:								
Predicted GPA	.07	.06	.11	.08	.10	.15	262	
Fall GPA	.02	.01	.18	.22	.13	.09	274	
Spring GPA	.04	.08	.07	.17	-.01	.05		249
Year GPA	.05	.05	.11	.22	.06	.07	248	
Self report of Academic Adjustment:								
Relative Acad. Adj.	.15	.13	.31	.07	.26	.11	228	216
Acad. Adj. Composite	.04	-.04	.41	.34	.42	.16	228	137
Satisfied w. Achiev't.	-.02	-.02	.29	.22	.32	.09	228	137
Concentrate on Stud.	.09	-.01	.46	.33	.33	.24	227	136
Enjoy Studies	.03	.01	.22	.39	.38	.32	228	138
Self report of Soc.-Emot. Adjustment:								
Social Adjustment	.28	.19	.25	.41	.23	.24	228	137
Relative Soc. Adj.	.34	.08	.14	.24	.20	.23	228	216
Happiness	.37	.26	.32	.51	.32	.25	228	137
Rmt. Compatibility	.10	.11	.10	.23	.14	.27	228	216
Lack of Anxiety	.09	.09	.20	.17	.17	.03	228	137
Lack of Worry	.53	.43	.23	.17	.30	.04	228	137
Lack of Symptoms	.03	.08	.19	.26	.32	.17	228	137
Other self report variables:								
Homesick			.20	.10	.18	.10	295	218
Satisfied w. Coll. Exp.	.20	.10			.35	.30	295	218
Attitude toward Univ.	.18	.10	.35	.30			228	137
Opinion of Sect. Advisor	.00	-.02	.14	.10	.22	.40	227	136
Mean Peer Rating Rec'd.:								
Health-Engendering Person.	.15	.11	.06	.05	.16	.02	294	265
Responsibility	.14	.06	.13	.12	.17	.11	294	265
Socially Adept	.18	.12	-.01	.06	.09	-.03	294	265
Pers.-Soc. Adjustment	.20	.09	.05	-.04	.13	-.17	294	265
N	295	218	295	218	228	137		

Note.--The number of subjects for a given correlation coefficient may be determined by estimating slightly less than the lower of row N and column N. As a basis for judging statistical significance, for N = 200 a correlation of .14 is significant at the .05 level and .18 is significant at the .01 level. For N=125 a correlation of .17 is significant at the .05 level and .23 is significant at the .01 level.

pessimistic orientation). However higher specific correlations suggest that there is more involved than response set.

Both satisfaction with college variables tend to be correlated higher with self reports of academic adjustment than with social-emotional adjustment as a whole. However the highest correlations with social-emotional variables are substantial correlations of Satisfied with College with Social Adjustment and Happiness, especially in the spring quarter.

Whereas the Satisfied with Achievement component of academic adjustment tends to be correlated much higher (than the other components) with grades, both measures of satisfaction with college are correlated as high or higher with Enjoy Studies and Concentrate on Studies.

Attained grade point average (Fall GPA, Spring GPA) is correlated somewhat higher with Satisfied with College than is Predicted GPA. However this does not hold for Attitude toward the University. It does fit expectations that attained grades would be more likely to be related to Satisfaction with the College Experience than to Attitude toward University (which is mainly directed at administrative aspects of the campus milieu relative to personal satisfaction in general).

Attitude toward the University is correlated higher with Opinion of Section Advisor (than is Satisfied with College)--this is logical when it is considered that section advisors are part of the administration and associated with the dormitory and with rules and regulations (factors which contribute to Attitude toward University).

There is only a low relation between Satisfaction with College and peer rating variables--the relationship is most consistent for Responsibility.

In summary, the pattern of relationships tends to validate these variables over and above positive correlations that might be accounted for by response set. (To the extent that it is operating, a relationship between response set and satisfaction with college variables would indicate that it is generally optimistic people who tend to be most Satisfied with College and have the most positive Attitude toward the University.) It appears that Enjoyment of Studies and other components of perceived Academic Adjustment contribute to students' Satisfaction with College and Attitude toward the University. Happiness is substantially related to Satisfaction with College and Attitude toward University. Social Adjustment tends to contribute more to Satisfaction with College than do other aspects of adjustment. As indicated in the following section, Attitude toward the University is also related to dropping out of college. (Dropouts were not compared for the Satisfied with College variable.)

Factors which Contribute to Dropping Out of College:

Dropouts were defined as students who failed to return to the university the following fall (the start of the next academic year after the collection of the research data). Preliminary identification was made by checking for freshmen on whom there was research data who were not included in the directory of students starting the next fall, and final determination was made from checking records of these individuals in the registrar's office. Students definitely identified as dropouts were designated as "not-in-academic-trouble" or "in-academic-trouble." Subcategories of students in-academic-trouble were those who had been notified of "Academic Dismissal" and those who were on "Probation" but not academically dismissed. Mean differences and t-tests comparing these categories of dropouts with a large control group are shown in the right hand side of Table 7.[5]

From examination of grade point average (GPA) for various quarters it can be seen that dropouts on Probation and Academically Dismissed had substantially lower GPA than the control group (as would be required by their designation in these categories). Yearly GPA for these dropouts was significantly lower than the control group, well beyond the .001 level of statistical significance. Furthermore, both categories of students were "underachievers," i.e., their attained Yearly GPA was much lower than Predicted GPA. (A Predicted GPA is calculated for each student at time of admission from a prediction equation based upon College Board Scores and High School Average in relation to attained GPA of previous classes.) Examination of GPA for the various quarters shows that the Academically Dismissed dropouts scored much below their Predicted GPA fall quarter, did somewhat less poorly winter quarter (perhaps in response to being put on probation after fall quarter), but scored almost as badly spring quarter as fall. In contrast, it was not until spring quarter that the Probation dropouts fell extremely low in their grades; in fall and spring quarters they were lower than the control group, but not much lower than their own predicted GPA.[6]

In addition to being underachievers, dropouts in-academic-trouble (Academic Dismissal and Probation) started out with a handicap--their

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[5] All analyses were limited to freshman men. The control group was the sample of 296 freshman men described previously, and fairly representative of the entire freshman class. Since some of the dropouts' scores were included in calculating means for the control group, this reduced the difference in means between dropouts and controls, meaning that tests used for this study were conservative. Information about samples and analyses in the text is supplemented by notes in Table 7.

[6] Although t-tests were not done comparing quarterly GPAs of Academic Dismissed dropouts with controls, from the magnitude of the differences (in relation to observed standard errors) there is little doubt that these differences would be statistically significant if tested.

Table 7

Mean differences and t-ratios Comparing Dropouts with Control Group

	Not in Academic Trouble					In Academic Trouble			
	Fall only (N=10, 14)		Fall & Spring (N= 20, 15)		Joint prob.	Probation (N = 30, 15)		Acad. Dismissal (N= 12, 11)	
Variables	M dif.	t	M dif.	t	z	M dif.	t	M dif.	t
Grades:									
Predicted GPA	-2.69	1.31‡	+.23			-4.08[c]	7.24***	-5.10[c]	5.94***
Fall GPA	- .34		-.10			-4.59		-13.17	
Winter GPA			+.45			-6.43		-9.60	
Spring GPA			-2.94			-10.61		-12.39	
Yearly GPA			-.05			-8.41[c]	10.96***	-11.89[c]	11.06***
Self report of Academic Adjustment:									
Relative Acad. Adj.	-.81	2.84**	-.18			+.02		+.41[a]	1.08
Ac. Adj. composite	-.52	3.29***	-.32	2.21*		-.34	2.46*	-.56[a]	3.24*
Satisfied/Achiev.	-.77	4.11***	-.24			-.56	3.08**	-.73[b]	2.62**
Concentrate/Stud.	-.34	1.70†	-.21			-.28	1.47‡	-.93[b]	3.21**
Enjoy Studies	-.58	2.65**	-.64	3.05**		-.34	1.57‡	-.35[b]	1.05
Self report of Attitude tow. Univ.:									
Attitude tow. Univ.	-.37	2.50*	-.33	2.23*		+.11		-.20[a]	

* p< .05, two-tailed test
** p< .01, two-tailed test
*** p< .001, two-tailed test
† p <.10, two-tailed test (p< .05, one-tailed test)
‡ p <.20, two-tailed test (p<.10, one-tailed test)

Table continued on next page.

Table 7 cont'd.

Variables	Not in Academic Trouble					In Academic Trouble			
	Fall only (N= 10, 14)		Fall & Spring (N= 20, 15)		Joint[d] prob.	Probation (N= 30, 15)		Acad. Dismissal (N= 12, 11)	
	M dif.	t	M dif.	t	z	M dif.	t	M dif.	t
Self report of Soc.-Emotional Adj.:									
Social Adjustment	-.24	1.44††	-.20	1.45††	2.04*	+.06		-.59[a]	2.45*
Relative Soc. Adj.	-.12		-.09			+.16		-.14[a]	
Happiness	-.30	1.83†	-.33	2.01*	2.72**	+.08		-.87[a]	2.66**
Roommate Compatibility	+.03		-.26	1.27		+.04		-.51[a]	1.83†
Lack of Anxiety	-.22	1.58††	-.26	1.94†	2.52**	+.13		-.14[a]	
Lack of Worry	-.25	1.58††	-.05			+.01		+.01[a]	
Lack/Tension Sym.	-.53	2.40*	-.20	1.02	2.42**	+.11		+.40[b]	1.37††
Lack/Digestive Sym.	+.18		+.17			-.02		+.21[b]	
Lack/Head Symptoms	-.12		-.03			+.10		+.07[b]	

Note.-- First N in parentheses for each dropout sample is N for GPA variables; second N is for self report variables. For control group (freshman doubles), N= 265-291 for various GPA's, N= 228 for fall self report scores, N= 137 for spring self report scores. Degrees of freedom for each t-test can be determined from this information. For subjects who dropped out after fall quarter, their fall scores were compared with the fall scores of the control group. For all other dropout samples, spring scores were compared with spring scores of control group.

[a] Self report variables based on shortened version of adjustment categories, n= 11.for dropouts and n= 216 for control group.

[b] Self report variables based on complete adjustment categories, but n= 6 for dropouts.

[c] For dropouts who were on probation or academically dismissed variances for GPA variables were significantly lower than variances for control group. So these t-tests were calculated using separate variances. All other t-tests were based upon variance estimates pooled from dropout and control samples. For comparison t-tests for probation and dismissed samples GPA variables were also calculated using pooled variance estimates -- this reduced those four t's to approximately half the magnitude shown above.

[d] Joint probability for comparison of dropouts not in academic trouble with control groups (fall, spring) was obtained by formula given by Winer (1962, p. 44-45): z = Sum(t's)/ square root of k (where k is number of experiments, in this case 2). Joint probability was calculated only for those variables on which there were sizable differences (from control groups) for fall and spring dropout samples but one or both of the separate t-ratios failed to reach more than borderline significance.

Predicted GPA was significantly lower than the control group ($p < .001$), and thus lower than average (since the control group is fairly representative of the class of freshman men). There were 14 dropouts in-academic-trouble who dropped out after the fall quarter (did not complete the academic year during which the research data was collected), whose data is not shown in Table 7. Their fall GPA was even lower than for the Academic Dismissal dropouts. Compared to the same control group the t-ratio testing the difference was significant beyond the .001 level. Also, like the other students in academic trouble, they started off with a handicap--their Predicted GPA was significantly lower than that of the control group ($p < .01$). It could well be that this handicap (which could be mainly lower intellectual aptitude and/or inadequate high school preparation and/or ineffective study habits and motivation in high school and college) was the main factor contributing to the academic trouble of these dropouts.

Probation and Academic Dismissal dropouts, as would be expected, were significantly lower than average on self reports of Satisfaction with Academic Achievement--it would be surprising for even relatively unperceptive individuals to score as badly on their grades and still report satisfaction with their academic achievement. Academically Dismissed dropouts also reported significantly more difficulty in Concentrating on Studies; this difference was of borderline significance for Probation dropouts, but joint probability of differences from both samples would be statistically significance. Differences in Enjoyment of Studies were in the expected direction for both dropout samples, but of borderline statistical significance. A tentative synthesis of this information suggests that lower academic aptitude (as measured by Predicted GPA) and difficulty in concentrating on studies play a greater role in the failure of these students than does motivation (in terms of interest in or enjoyment of studies).

Academically Dismissed dropouts (but not dropouts on Probation) had significantly lower (or of borderline significance) scores on Social Adjustment, Happiness, and Roommate Compatibility. This fits with the observation noted in a section above that there are a small proportion of students whose social-emotional problems interfere with their study effectiveness, in spite of an essentially zero relationship between social adjustment and academic achievement for all subjects combined. However this is not consistent with the finding that dropouts in Academic trouble had less Tension Symptoms than average, reaching borderline statistical significance.

It was hypothesized that dropouts not-in-academic-trouble would be characterized by problems of social-emotional adjustment, unfavorable attitude toward the University, and disinterest in their studies. The mean differences and t-ratios (comparing them with the control group) testing these hypotheses are shown in the left hand side of Table 7. For early dropouts (those dropping out before the end of the academic year and referred to in Table 7 as "fall only") fall adjustment and GPA scores were used for the analyses. For later dropouts (those completing the academic year but not returning the following fall, and referred to in

Table 7 as "fall and spring") GPA scores for all quarters were considered, but only spring adjustment scores were analyzed.

As may be seen in the lower part of Table 7 (its second page), the dropouts not-in-academic-trouble were significantly lower than the control group (i.e., lower than average) in Social Adjustment and Happiness; they had significantly more Anxiety and Tension Symptoms.[7] The differences for all but one of the other measures of social-emotional adjustment were in the predicted direction.

As predicted, Enjoyment of Studies was significantly lower than average ($p < .01$) for both subcategories of dropouts not-in-academic-trouble. Satisfaction with Academic Achievement was also significantly lower for early dropouts than average, even though there was little difference in their attained GPA fall quarter (and they might actually be considered "overachievers" since their Predicted GPA was lower than their attained GPA fall quarter). Later dropouts (who completed the academic year) also had lower than average scores on Satisfied with Academic Achievement (which did not reach statistical significance), which corresponds to a moderate dip in their spring GPA (which, also, was not statistically significant). Both subcategories of dropouts not-in-academic-trouble had lower than average scores on the Concentrate on Studies academic adjustment subcategory, but this reached borderline statistical significance only for the early dropouts. In summary, early and later dropouts not-in-academic-trouble are characterized by much lower than average scores on Enjoyment of Studies. Early dropouts were also characterized by much lower than average scores on Satisfaction with Academic Achievement, even though their attained GPA (fall quarter) was somewhat higher than their Predicted GPA; this was probably related to much lower than average scores on Relative Academic Adjustment, on which they report their enjoyment of studies and sense of accomplishment in studies in college relative to their enjoyment of and accomplishment in high school courses. Although there is no direct evidence concerning this here, it should be worthwhile in other research considering whether dropping out when not in academic trouble is related to having especially boring classes and/or unsatisfying professors.

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[7] As indicated in Appendix A, for a large unselected sample all 15 physiological symptoms tested loaded on the same factor when factor analyzed with other items; it was only when these 15 items were factor analyzed separately from other items that the tension, head, and digestive symptoms were separated from each other. In several other analyses in which the separate subcategories of symptoms were included, there was relatively little difference in their relationship with other (marker) variables, so for most analyses it was the Lack of Symptoms composite (of all 15 items) that was used. It is interesting, however, that it is only the Lack of Tension Symptoms subcategory (tension, nervousness, excessive fatigue, rapid heartbeat) that distinguishes dropouts not-in-academic trouble from other students.

Both early and later dropouts not-in-academic-trouble were characterized by lower than average Attitude toward the University ($p < .05$ for both samples, which probably would have reached beyond the .01 level if tested for joint probability).

Dropouts were compared with non-dropouts on the four peer rating variables used in other studies of this research program. Mean differences and t-ratios are shown in Table 8. Unfortunately this data was not analyzed for dropouts divided into subcategories of those in-academic-trouble and those not-in-academic-trouble, so the data must be considered for all dropouts combined. From Table 8 it may be seen that Responsibility is the peer rating variable on which there is the greatest difference between dropouts and non-dropouts. The difference between dropouts and non-dropouts on Responsibility is statistically significant at convincing levels (see Table 8). Responsibility is the variable described in Appendix D as important for academic achievement, as well as for other task roles important in college and the larger society. It appears that irresponsible behavior and personality characteristics contribute to dropping out of college, over and above the below average academic aptitude and the social-emotional states described above, and conversely that responsible behavior and personality characteristics contribute to a successful completion of college.

Although clear causal relations cannot be determined from a post hoc analysis of field study data such as this, the following tentative interpretation is offered. Students with the initial handicap of lower than average academic aptitude (as determined by Predicted GPA, based upon College Board Scores and High School Average) are quite likely to end up in academic trouble (Probation or Academic Dismissal) and as underachievers (as determined by attained GPA being much lower than predicted GPA). However not all students with lower than average academic aptitude end up as dropouts in academic trouble and as underachievers. This outcome is increased for students who are lacking in Responsibility.

Students with lower than average academic aptitude who do poorly in their studies from the start (in contrast to those whose poor academic performance shows up only gradually), are characterized by lower than average ability to concentrate and avoid distractions and by lower than average social adjustment; unhappiness and incompatibility with roommate are also part of this syndrome. It appears, then, that the students who fall by the wayside from the beginning are also more emotionally vulnerable and less effective in general.

It would seem that early identification and help would be especially appropriate for students displaying this pattern of symptoms, and that help would need to constitute more than helping them increase their academic motivation. On the other hand, increasing academic motivation (especially in the form of increasing the interest and personal relevance of their studies) seems to be the most relevant approach for students with lower than average academic aptitude who are not so emotionally vulnerable.

Table 8

Mean Differences and t-ratios Comparing Dropouts with Non-Dropouts on Mean Peer Ratings Received

Peer Rating Variables	Fall Scores (D.O.'s N=20) M dif	Fall Scores (D.O.'s N=20) t	Spring Scores (DO's n=53) M dif	Spring Scores (DO's n=53) t	Joint prob. z
Health-Engendering Person.	-.16		-.14		
Responsibility	-.25	1.87†	-.28	2.67**	3.21***
Social Adeptness	+.10		-.13		
Personal-Social Adjustment	+.02		-.09		

Note.-- Dropouts for these analyses were not specified as to academic trouble or not. The fall means of the 20 subjects who dropped out before fall quarter were compared with the fall means of 312 non-dropouts, d.f. = 330. The spring means of 57 subjects completing the spring quarter but failing to return the following fall were compared with spring means of 347 non-dropouts, d.f. = 398. For all variables the means for non-dropouts were almost identical to those of the freshman doubles sample, used as control group for other comparisons. Joint probability in last column (considering t from both samples jointly) was obtained by formula given by Winer (1962, p. 44-45): z = Sum(t's)/ square root of k. (K = number of experiments, in this case 2.)

** $p<.01$, two-tailed test
*** $p<.001$, two-tailed test
† $p<.10$, two-tailed test ($p<.05$, one tailed test)

Students with average academic aptitude, who later become dropouts while maintaining satisfactory grades, provide a somewhat different situation. Their negative attitude toward the university and their lack of enjoyment of their studies may reflect more than their share of trouble in sampling academic courses and other aspects of the campus milieu. These students are also characterized by lower than average social adjustment and happiness, and more than their share of anxiety and tension symptoms. These individuals may also be considered emotionally vulnerable, as well as lacking in social skills. Approximately half of the people with this pattern drop out early in the academic year. It also seems important to make early identification and provide appropriate help for students with average academic aptitude who have a pattern or inadequate social skills, dissatisfying experiences in their studies and with the university, and more than their share of unhappiness and tension.

Certainly appropriate help is needed (by individuals with these problems) in making a satisfactory life adjustment and developing into effective citizens.

Student Opinions of Factors Which Have Favorable and Unfavorable Effects:

Open-end questionnaires were administered to several hundred students, asking what aspects of the university satisfy them the most and have favorable effects upon students, and what aspects of the university dissatisfy or bother them especially and have unfavorable effects upon students. Content analyses of favorable effects were made from answers of 209 students making up a fairly broad cross-section of the student body (with freshmen somewhat over-represented). Content analyses of unfavorable effects were made from answers of the same students, plus an additional 67 freshmen. Answers were coded into content areas by the broad and inclusive set of categories developed from student responses and referred to in footnote 2 of this report. Frequency distributions of answers are shown in Tables 9 and 10, with the samples and questionnaires described in more detail in Table 2-k at the end of this report.[8]

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[8] Frequencies are referred to in terms of percentage of students mentioning each category. This may be somewhat misleading since some students mentioned more than one thing (coded in different subcategories) in the same category. For example, Table 9 shows 88% of students mentioning some form of social factor as having favorable effects; since some students mentioned more than one social factor it was probably closer to 70% of the students who mentioned at least one social factor. However using the number of subjects (N) as a denominator and dividing N into the number of things mentioned in each category does provide a common frame of reference for comparing the relative frequency with which various categories were mentioned, and comes fairly close to representing the absolute number (in terms of percentages) of people who mentioned each category. It was only in the more frequently mentioned areas, mainly the Social category of Table 9 and to a lesser extent Academic-Intellectual in both tables and The Institution in

It is interesting that the total number of favorable things was almost identical to the total number of unfavorable things--2.04 favorable things per subject, and 2.07 unfavorable things per subject, to the respective questions. This indicates that subjects were equally likely to praise as to criticize. The categories of favorable things in Table 9 correspond to the categories of unfavorable things in Table 10, so it is possible to compare the relative frequency of positive effects with the relative frequency of negative effects for each area. Although all the main categories correspond for favorable and unfavorable effects, not all subcategories correspond from table to table. This is because subcategories not mentioned (or mentioned by very few people) were omitted from the tables (or combined with similar subcategories).

As shown in Table 9, the Social area was reported as satisfying or having favorable effects upon the most students (88% in Table 9), with Friendships and Social Activities (subcategories) providing satisfaction for the most people. The only other area reported as satisfying or having favorable effects upon a large percentage of students was Academic-Intellectual, with most of these accounted for by Professors and Courses. It is interesting that an almost equal number of people mentioned Academic-Intellectual things as bothering them or having unfavorable effects upon students--60% unfavorable effects (Table 10) compared with 65% for favorable effects (Table 9). The other category mentioned as bothering or having unfavorable effects for a large proportion of students was The Institution.

Comparing the data reported in Tables 9 and 10 it can be seen that Social factors bothered a moderate number of students (35%, Table 10), as well as providing a large amount of satisfaction (88%, Table 9). Likewise, a moderate number of students mentioned satisfying things about The Institution (15%, Table 9) as well as providing a large amount of dissatisfaction (54%, Table 10). The opinion was about equally divided about Academic-Intellectual factors (Professors and Courses). The large amounts of satisfaction and dissatisfaction expressed in these areas probably mean that these are the most central aspects of the university for most students, and that students differ considerably among themselves in their opinions about and experiences with professors and courses, and to a lesser extent they differ in their experiences with various aspects of The Institution and various Social experiences.

Footnote 8 continued:

Table 10, that an individual was likely to mention more than one thing in the same area. It was rather unusual for an individual to mention more than one thing in a given category for the categories with the lower percentage figures. So the percentages for the less frequently mentioned categories are only slight overestimates of the percentage of individuals mentioning at least one thing in a given category.

Table 9

Frequency Distribution of Responses to Open-end Question Asking Students What Things (Encountered at the University) Please or Satisfy Them and Have a Favorable Effect Upon Students--In Terms of Percentage of Students Mentioning Each Area

88%	Social:	
	12%	Other students--learn about variety of people and viewpoints; friendliness
	27%	Friendships--satisfying friendships and social relations (almost all refer to same sex peer relations)
	4%	Dating
	11%	Fraternity and sorority--mainly pleased with participation; several refer to being accepted into membership
	21%	Social activities, extracurricular--band, sports, cards, dances, parties, social life in general
	4%	Being on my own--chance to grow up, feel mature, own boss
	9%	Misc. social
15%	The Institution:	
	2%	Rules and regulations--pertaining mainly to individual rights and freedom from external control
	½%	Administration
	9%	Dormitory--several referred to convenience or favorable atmosphere; but most referred to "dorm life" (which could be coded under Social).
	½%	Food and eating facilities
	0%	Registration
	3%	Misc. re. the Institution
65%	Academic-Intellectual:	
	23%	Professors--mainly reference to good teachers, satisfied with teachers; also concern for the individual
	26%	Courses--mention of specific courses pleased with, or satisfied with courses in general
	4%	Advising
	6%	Cultural Activities--concerts, shows, speakers
	4%	Library
	2%	Misc. re. Academic-Intellectual
6%	Studies (progress in studies):	
	4%	Grades--satisfied, pleased with grades
	2%	Study habits--satisfied with, progress in study habits
4%	Study Atmosphere--mainly study facilities in library	
6%	Residence Hall as a Physical Facility--mainly general reference to good living accommodations by students in new dorm, private dorm	
8%	Conveniences--mainly references to physical appearance of campus, e.g., shade trees, appearance of North campus, modern buildings	
5%	Misc. and Unclassifiable	

Note.--Further information about samples and questions may be found in Table 2-k at the end of this report.

Table 10

Frequency Distribution of Responses to Open-end Question Asking Students What Things (Encountered at the University) Bother or Dissatisfy Them and Have an Unfavorable Effect Upon Students--In Terms of Percentage of Students Mentioning Each Area

- 35% Social:
  - 19% Other students--immature, irresponsible, unfriendly, hypocritical, different viewpoints
  - 16% Misc.--extracurricular, dating, fraternity and sorority, friendships
- 54% The Institution:
  - 22% Rules and regulations--too restrictive, limit individual freedom and rights (including dorm rules)
  - 11% Administration--how they relate to students, how rules are enforced
    - 7% Alienation--not considering student as individual, as responsible adult; lack of communication; impersonal
    - 4% Specific administrators--dorm staff, dean's staff, etc.
  - 6% Dormitory--unpleasant atmosphere, lack of privacy
  - 5% Food and eating facilities
  - 4% Registration
  - 6% Misc. re. the Institution
- 60% Academic-Intellectual:
  - 28% Professors--unconcern for the individual, poor teacher, attitudes, graduate students as teachers
  - 27% Courses (professor not mentioned)--poorly taught, too hard, too much work, class too large, trivial, exams unfair; requirements too restrictive
  - 5% Advising
  - 0% Cultural activities
- 11% Stress Over Studies--demands on time, dissatisfied with grades, study habits
- 13% Study Atmosphere--noise and distractions; need for study area and quiet hours
- 8% Residence Hall as a Physical Facility:
  - 5% Convenience facilities--phones, food, ice, storage
  - 3% Other--maintenance, atmosphere, etc.
- 13% Inconveniences:
  - 6% Size of campus and walking
  - 7% Misc.--including traffic, parking
- 4% Personal Limitations--lack of recognition, not enough time, etc.
- 7% Misc. and Unclassifiable
- 4% None (question answered "none" or similar)

Note.--Further information about samples and questions may be found in Table 2-k at the end of this report.

It would be redundant to describe the data further, since the information in Tables 9 and 10 is fairly complete and straightforward. In considering the data it should be kept in mind that these are the things that are most "salient" to college students at a particular university--the things they think of first when they are asked a general question of this nature. Data of this form is useful, and provides further insight into student opinions of factors which provide satisfaction and dissatisfaction, have favorable and unfavorable effects upon their development. However this information may be usefully supplemented by a more objective method for assessing student perceptions of the campus milieu (as described in Appendix D), and by asking more specific open-end questions.

Table 11 summarizes students' responses to a more specific question--asking for their suggestions about the dormitory. Data included in this analysis was obtained from answers of 113 freshman men living in a large, relatively old dormitory with rather sparse facilities compared with those in more advanced structures. As shown in Table 11, the majority of the students responded to this open-end question with comments and suggestions about physical aspects of the dorm. The distribution of suggestions about various aspects of the dorm may be grasped most easily by scanning Table 11. The point that seems most worthy of comment is the large proportion of students who make suggestions about aspects of dorm structure and dorm life that would improve the study atmosphere. Following are several quotes from students' answers that provide some flavor of a few of their suggestions and perceived benefits. A better balance of student answers may be obtained by considering these quotes along with those in other parts of this report and in Appendix M, and descriptions of subcategories in Table 11.

> Better opportunity for serious study habits are needed during the week and better opportunities for social activities (not necessarily parties, etc.) but also intraclass activity, sports, concerts, etc., on the weekends to help keep the students here at school. Many of them seem to consider the University only as a place to stay during the week and when the weekend comes it's the thing to go home. An attempt should be made to help the average student adjust to making the university his "home." This would certainly improve his maturity, as well as probably his grades and study habits. A student who doesn't have any activities to go to here doesn't bother to adjust to being away from home as he will have to eventually.

> The reason my answers are so brief on the last few (questions) is that I go home every week. During the week I'm happy with the University, but the weekends are better. I guess if I stayed on weekends I could get a better over-all view of the environment but doing this way I do just see the academic part and the people in the dorm--but I do come back for the ball games, since I don't live that far away.

Table 11

Frequency Distribution of Suggestions About Residence Hall Life By First Quarter Freshmen--Each Area in Terms of Percentage of Times Mentioned Per Subject

- 6% Social Conditions--need for more social functions, dances; better selection of roommates; etc.
- 36% Administration, Rules & Regulations:
    - 24% Rules and Regulations too restrictive; limit individual freedom, and reduce taking of responsibility--too strict about small things, small electrical appliances should be allowed, students should be able to arrange own room and hang pictures, gestapo tactics and unfair punishment stopped, don't search room without permission, liquor allowed, allow cars, more opportunity to practice musical instruments, should not be allowed to live in dorms, students should be allowed to depend on their own judgment, etc.
    - 5% Select Section Advisors more carefully, ones who are interested in the students; section advisors don't abide by the rules, add to the noise and hell raising
    - 5% Provide more administrative support for section advisors--more specific rules to back them up, more official recognition
    - 2% Regulations needed--need more enforcement of rules (without specific mention of quiet hours); change roommate policy
- 66% Study Conditions (need to be improved):
    - 19% Study lounge or other study area needed (Note: These same responses were also coded under Residence Hall as a Physical Facility.)
    - 15% Dorm rooms need to be better suited for study--thicker walls or acoustical material needed to dampen noise, replace slats in doors to reduce noise, all rooms should enter from hall rather than through another room, better study facilities in room, etc. (Note: Of the 15% recorded here, 10% pertaining to room construction were also recorded under Residence Hall as a Physical Facility.)
    - 2% Facilities more conducive to study needed (without specific reference to a study area or dorm rooms)
    - 11% There is too much noise and other distractions (implying it should be reduced)
    - 19% Quiet hours should be enforced; should be enforced better

this table cont'd, next page

172% Residence Hall as a Physical Facility:

29% Dorm rooms should be more adequate (student bedroom-study rooms, the rooms in which they live)--larger, more conducive to study, better furniture, a chest for each person, better lighting; conveniences such as phone, lavatory, electric appliances in room (Note: Of the 29% recorded here, 10% pertaining to construction of room to be more conducive to study were also recorded under Study Conditions.)

19% Study lounge or study area needed (Note: This 19% also recorded under Study Conditions.)

26% Better Recreation Facilities needed--recreation room, party and game room, more television facilities, television sets that work

3% Student meeting rooms needed

6% Bathroom facilities--need improved bathroom facilities, private bathrooms, doors needed on toilet facilities

43% Convenience facilities needed--food and ice machines, more phones (other than specific mention of phones in rooms, which were coded above), more storage space, etc.

34% Maintenance should be better--cleaning; repairing and painting

12% Appearance which contributes to morale (specific mention of this, in contrast to this factor which may be implied by mention of suggestions coded in other categories)

6% Misc. (including 1% Academic) and Unclassifiable

Note.--Answers coded in the content analysis summarized above were in response to the item, "On the back of this booklet please write any information or suggestions about residence hall life that you think would be useful." This question came at the end of a booklet containing a sociometric questionnaire and several other sets of questions, administered approximately three weeks before the end of fall quarter. Although most subjects answered the other questions, many subjects omitted answers to this question at the end of the booklet. The 113 booklets included in this content analysis were arbitrarily selected from those who answered this question, so as to approximate a random selection. For this sample there were a total of 323 suggestions (an average of 2.86 per subject). The figures in the table might be expressed more appropriately as ratios, but were expressed as percentages to be consistent with the form of data in other tables summarizing content analyses. The 172%, for example, means that 1.72 suggestions about the Residence Hall as a Physical Facility were mentioned per subject. The 66% means .66 Study Conditions mentioned per subject. Looking at it another way approximately 66% of the subjects mentioned some form of study condition in their suggestions. (Actually this may have been somewhat less than 66% of the subjects, since some subjects may have mentioned more than one suggestion pertaining to study conditions.)

> More modern student center, better dorm accommodations, etc., would do much to improve the attitude of students toward the University. If freshmen do not go home for the weekend, there just isn't anything to do here on campus if they aren't affiliated with a frat.
>
> Although I am somewhat satisfied with living conditions, the rooms are drab and plain, and tend to reduce overall morale. Not only with me but many others have brought up the same complaint. They say it is like living in a prison cell. The main reason is that nothing is allowed on the walls, if just one or two hooks were allowed for pictures it would increase the appearance of the rooms immensely.
>
> I think there should be some type of relaxing recreation to minimize tensions, and quietness should be more strictly enforced.

The data in this section is descriptive, rather than showing relationships, and is limited more than other data in this report to a particular setting or kind of setting. The objectives in presenting it are (1) to provide a rough idea of the things that are salient to college students, (2) to summarize the dimensions of their opinions expressed in response to broad open-end questions about the campus milieu and dormitory in particular, and (3) to show how this approach may be used as a systematic way of obtaining information from observers who have a strategic viewpoint of the campus milieu. A "feel" for their ideas may be obtained from the subcategories of these tables and those in Appendix M, and from quotes of students' answers in this report and in Appendices D and M. This has the practical implication that organized collection of student reactions and suggestions (in their own words) about various aspects of a college or university, such as in the manual developed for these content analyses and described in footnote 2, could be developed and used to advantage by educators at any college or university.

Student Participation in Self Government:

Table 12 shows frequency distributions of answers (in terms of percentage of students responding to each alternative) by 116 freshman men to items about student participation in campus government and related areas. Contrary to the usual conclusions about student apathy, 90% indicated they would be willing to participate in some form of student government if there were something they could do that would be a really useful contribution. Even if this is an overestimate of those who would follow through when given the opportunity, it appears that a substantial number of students would participate in some form of self government or service if their efforts could be channeled effectively in appropriate ways. There were 81% who even would be interested in some form of training for this participation. This indicates, then, that there is a vast resource of student effort and talent that could be used in responsible self government or other service if provided appropriate opportunity and leadership.

Table 12

Students' Interest in Participating in Self Government and Their Opinions about Student Leaders

Most students have no opportunity to participate in campus government because they are not elected. Sometimes a person prefers not to participate because he sees no way to be of real service. Would you be willing to participate in some aspect of campus government if there were some things you could do which you believed would be a really useful contribution?

10% (1) No
90% (2) Yes

Would you be more likely to participate in campus government if there were a way of learning or being taught the job well?

19% (1) No, I wouldn't especially want or need it
81% (2) Yes, I would prefer such training

Would you be willing to participate in a regular service project to the community (e.g., help tutor children with learning difficulties, help care for sick, help repair sub-standard property) if you were assured that it were needed service and if you could receive appropriate training?

32% (1) No
68% (2) Yes

If yes, how many hours per week would you be willing to devote to such service on a regular basis (except for exam week)?
Of those who said yes:
48% (1) 1-2 hours per week
42% (2) 3-5 hours per week
8% (3) 6-10 hours per week
2% (4) 11-15 hours per week

Do you believe that most representatives to the freshmen men's council are concerned more with the prestige of the position or with real service to the student body?

49% (1) More concerned with prestige
39% (2) Concerned equally with service and prestige
12% (3) More concerned with service

Do you believe that most argonauts (sophomore informal advisors) are concerned more with the prestige of the position or with real service to the student body?

15% (1) More concerned with prestige
30% (2) Concerned equally with service and prestige
55% (3) More concerned with service

Do you believe that most section advisors are concerned more with the prestige of the position or with real service to the student body?

11% (1) More concerned with prestige
26% (2) Concerned equally with service and prestige
63% (3) More concerned with service

As for the relatively small portion of freshmen elected to existing student government offices, the prevailing opinion is that they (as a group) are less concerned with service than with prestige--a motive which all too often influences student politicians to seek office. This is compared with relatively more concern for service perceived in students who have volunteered for service roles (the "argonauts" referred to in an item at the bottom of Table 12), or taken a job of responsibility and service (the "section advisors" referred to at the bottom of Table 12).

As shown in Table 12, more students would like to participate in student government than in some form of social service project in the community. However there are still a substantial number who indicate an interest in participating in community service. It would be interesting to see if students in general have developed increased interest in such participation in the interval since the collection of this data, to correspond with the increased social awareness that seems to have developed in college students since that time. It would seem that the spare time and talent of college students interested in social service would be a valuable and usable asset for any community where college students are available.

Concerning student participation in responsible self-government, descriptions of student interaction in informal groups (in Table 1-k at the end of this report and in Appendix M) indicate that students do have a strong need for some form of social interaction, but that much time is spent in activities which have little benefit. Certainly participation in informal groups a certain amount of time is a useful form of social learning and entertainment. However it appears that there is an excess of social activity available which students would be willing and interested in channeling into more responsible service if they had the opportunity and know-how. It should be a worthwhile challenge for a creative administration to provide the opportunity, leadership, and training to enable students to contribute this service to themselves and others.

5

Table 1-k

Descriptions of Informal Student Groups in the Dorms

This table shows the questions and their introductions, as well as the students answers. Note that the introduction and the question themselves provide information about informal student groups--information obtained from earlier observations, interviews, and answers to open-end questions. This information was then used to structure the questionnaire in such a way as to get more specific descriptions from students in their own words. The questionnaire and the questions follow.

On most campuses and in most dormitories there are a variety of small informal groups which may arise. Such a group would be identified by the fact that the same people get together on a number of occasions. They may not all be together every time, but they do tend to spend a good bit of time with each other. There is usually some common activity such as athletics, going out to drink beer, playing cards, raising hell, or simply getting together for bull sessions, studying, or going out to eat; although the group members may also do other things together besides the common activity. These informal groups may be rather firmly established cliques which allow little participation by outsiders, or they may have much looser membership requirements with the participants barely recognizing the common activity and sharing of time together, like when watching TV together. They may consist of only three or four students, or a dozen or more. A given individual may participate in several informal groups during the same period of time, or none.

Since these are not formal groups with membership as such, it is more appropriate to think in terms of "participants" (in common activities or people who spend time together) rather than "members." However, "member" is used here as a convenience in writing these instructions.

1. How many students in your section of the dormitory do you believe participate in at least one such informal group (whether or not it is one of the groups you describe below)? Answer in terms of percent of students participating in at least one informal group.

   The average (mean) response was 80%.

2. How many students in your section of the dormitory do you believe participate in at least two such informal groups (whether or not it is one of the groups you describe below)? Answer in terms of percent of students participating in at least two informal groups.

   The average (mean) response was 61%.

3. In the space below please try to describe several informal groups which you have observed or participated in since coming to the University. For each group you identify please try to include as much as possible of the following information as you can: (a) the approximate number of members or participants; (b) the common activity, and the number of hours per week spent in it by the typical participant or member; (c) other activities they may participate in as a group, and the number of hours per week spent as a group in these other activities, if any; (d) the extent to which the group can or does exclude others from participating (how hard it is to get in these groups), and the extent to which loyalties and demands are made upon the members; (e) the personal characteristics, mannerisms, etc., of

the members which distinguish them from non-members; (f) the kind of effect the group seems to have upon the members' studies, and upon their personal adjustment and social development; (g) the circumstances that were responsible for these people getting together as an informal group, e.g., common interest, knew each other before, live close together, etc.; (h) where they come from, and where they spend their time together, e.g., dorm, etc. Although you may not be able to include all of this information for all groups you describe, include as much of it as you can and be as specific as you can when you describe these groups below.

Following are some of the more complete descriptions given and several less complete but typical descriptions given in response to this item.

Subject A, Group 1. About 4 or 5 freshmen meet in one of their rooms several times a week. The main activity is simply a bull session con-concerning grades, study problems, and the other aspects of college life. It's a good time to release those pent up emotions based on the big test you just failed. I believe that this release of tension makes it easier to get back to the books, because it tends to lessen the worries. The participants have been brought together by common interests and by coming from the same area.

Subject A, Group 2. Six or eight people usually gather in a room to play a few games of rook. There is no in-crowd or out-group, and the only requirement is a knowledge of cards. These sessions are held whenever 2 or more people want to play, and it is never hard to find a few of these. Studies seem to fade into the background as one of your buddies calls out, "Lets go play some rook." The social developments are abundant, but I feel that the loss of much study time overshadows them in a considerable amount.

Subject B, Group 1. Thoughts alphabetized as above: (a) 10-15; (b) Playing cards, raising a minimum amount of hell, and bull sessions. We probably spend about 20-25 night hours every week; (c) Some of us play a little football 3-4 hours a week, some play chess, some play checkers; all together not amounting to more than 5-6 hours a week; (d) It is not hard to get in this group, you just have to have a friendly attitude; (e) A few cuss excessively, some drink occasionally but not always (usually seldom as our group is not rich). Other than just playing a considerable amount of rook, there is no distinguishing mannerisms; (f) It sometimes hurts studies because you spend too many hours together otherwise it is all right; (g) A few knew each other and the rest were sort of brought together by the bull sessions we used to have with our proctor, before someone moved him out; (h) We came mostly from all over the state and we spend most of our time together in the dorm.

Subject D, Group 2. We have other groups which form from instate or nearstate areas (usually from the same town) and seem to be the exact opposite in the respect that they give little trouble as a group but do socialize and raise hell together but probably to a lesser extent time wise.

Subject E, Group 1. This group consists of four to five people who play cards, go to eat, and shoot the bull together. About 12 hours per week are spent in this group. It is not too hard to get in this group, just have a reasonable amount of respect for the others. This group helps make it easier to have something to do and sometimes it helps more reserved members to have fun. The grades are about average. The reason for formation of group was common interest. The boys are from around the state, a couple from out of state. Time is spent in dorm.

Subject E, Group 2. This group has about five members who play pool, talk, go places, and raise hell together. Twenty four hours per week is spent in this group. It is a group that hardly anyone can get in, because its members won't accept them easily. The members made good grades in high school and know their way around pretty good. But this has a bad effect on grades, and a good one in that you have someone that you know to do things with. Its members knew each other before coming here. They are from the same general area.

Subject F, Group 1. Football games--many participants--anyone can play--always a game going on--usually from 10 to 12 boys playing at any given time. Sometimes larger and sometimes smaller.

Subject F, Group 2. Bull sessions--anyone can participate--one going on nearly all the time in the dorm. All you have to do is seek it out. Anywhere from 2 to 10 participants.

Subject G, Group 1. There are some boys on my hall that get together during the week around 10:30 or 11:00 and order some food from the Shrimp Boat. The number varies. They sometimes go in someone's room and talk until the food gets here.

Subject G, Group 2. On some nights a group of us on the first floor will accumulate in someone's room and talk about many various things, just whatever pops up. There's nothing regular about the gathering. We just happen to get together off and on during the weeks.

Subject C, Group 1. Hell Raising. Consisting of from 2-6 members. They like to prove to each other they have nerve and are not afraid of getting into trouble. This type of group member very often has trouble with his studies and/or authority. The only thing a person needs to do to get in group is to do something by which he could get into trouble about if caught.

Subject D, Group 1. Most of the groups that form which stand out to me usually consist of 4-5 boys which mostly raise hell together and are usually a long way from home (from out of state, i.e., Miami or New Jersey or some other state). They spend most of their time together, except studying which they seem to do little of.... I may notice these more than others because of my position (section advisor).

Table 2-k

Information Clarifying Frequency Distributions of Responses from Content Analyses of Answers to Open-end Questions (Regarding Tables 9, 10, 11)

Things that have an unfavorable effect upon students:

276 = Number of Subjects (N)
14 = Number of Questions left blank (blank)
262 = N minus Blank--used as denominator for calculating percentages
542 = Total number of things mentioned; including "none"
2.07 = Average number of things mentioned per subject

Samples: 119 freshman men Spring 1965; 68 women students Spring 1965; cross-section of 47 male and female students Fall 1967; cross-section of 42 male and female students Winter 1969.

Things that have a favorable effect upon students:

209 = Number of Subjects (N)
8 = Number of Questions left blank (blank)
201 = N minus Blank--used as denominator for calculating percentages
401 = Total number of things mentioned, including "none"
2.04 = Average number of things mentioned per subject

Samples: 52 freshman men Spring 1965; 68 women students Spring 1965; cross-section of 47 male and female students Fall 1967; cross-section of 42 male and female students Winter 1969. This sample was identical to the sample used for content analysis of things that have unfavorable effects, except for inclusion of 67 less freshman men. Due to this difference in the composition of samples, the data of the 52 freshman men common to both samples was examined. Following were the main differences which could effect the distribution of responses: freshman men (compared to the other subsamples)(1) were somewhat more likely to mention "being on own" under Social; (2) they were somewhat less likely to mention (a) Study Atmosphere, (b) Conveniences, and (c) "rules and regulations" under The Institution. This should make only a small difference in comparing favorable things (in this table) with unfavorable things (in the preceding table), but should be considered as minor qualifications in making comparisons in these four areas.

Things about which students are disappointed:

68 119 = Number of Subjects (N)
21 5 = Questions unanswered (Blank).
47 114 = N minus Blank--used as denominator for calculating percentages
73 141 = Total number of things mentioned, including "none"
1.55 1.24 = Average number of things mentioned per subject

Samples: The samples were the ones referred to above of 68 women students and 119 freshman men. Actually the sample of freshman men included approximately 10%-15% upperclass students. The sample of women students included approximately 40% freshmen, 30% sophomores, and 30% juniors and seniors. Booklets of men subjects who left this section of the booklet blank or as much as half of this section blank were not included in the coding. However booklets of all women subjects were included in the coding. Thus, the proportion of women leaving this question unanswered (considering all subjects) is probably not less than for men, contrary to the impression given by the number of questions left blank.

Wording of questionnaires asking for students' answers about things that have favorable effects and things that have unfavorable effects:

The wording varied somewhat from sample to sample, yet was fairly similar. The introduction to the section in which these equestions were included referred to "factors which may have a major effect on a person," or "things about the campus environment (which effect) adjustment and academic achievement," or "main things that have seemed important to you... aspects of the university environment which seem to have had an effect upon you." Specifics included to illustrate what was meant by campus environment, things, and factors included the following: courses, study conditions, other students, residence hall, activities, administrative policies, services, etc. The examples were provided to influence respondents to think in concrete terms; but they were given in terms of "for example" and ended with "etc." to keep respondents from limiting their answers to the specifics given as examples. For favorable effects, the question itself, for the various samples was worded in terms of things that "pleased you the most or had an especially favorable effect upon you?" or "satisfy you--contribute to achievement and adjustment of students?" For unfavorable effects the question was worded in terms of things that "displeased (or bothered) you especially or had an unfavorable effect upon you?" or "bother you--make you dissatisfied, hinder adjustment and achievement of students?"

Wording of questionnaires asking about things men and women students were disappointed or dissatisfied with:

For both samples the question followed the questions about favorable and unfavorable effects, referred to above, so was in that context. For women the question was worded, "During the year were there any things about yourself that you were dissatisfied with that you were not able to improve much, which you still need to improve? (This could include friendships, ability to concentrate, social relations, etc.) If so, please describe briefly." This was preceded by a companion question asking about "...things about yourself that you were dissatisfied with that you were able to improve..." with other parts of the question being completely parallel. For men the question was worded, "Was there anything you hoped for or failed to accomplish, about which you feel disappointed? Please be specific." Although this did not have the personal reference to "yourself" included in the question to women, it was preceded by a companion question and a one sentence introduction to the pair of questions which did provide a more personal reference: "The next two questions are about the kinds of effects the campus environment has had (or failed to have) upon you, and ways you may have changed (or failed to change). Was there anything you did or accomplished this year, about which you are especially pleased? Please be specific." Although the question wording was quite a bit different for men and women, the intent was the same. That the reference was personal for men as well as for women is evident in the content of answers (in contrast to mainly environmental things mentioned in reference to the two questions referred to above about favorable effects and unfavorable effects). However, for men the emphasis tended to be somewhat more on events, and there was not the specific illustration of "friendships, ability to concentrate, social relations, etc." that was included in the question to women. This wording difference may account in part for the tendency of men to mention disappointment in grades, while women were more likely to express stress from studies in terms of personal study problems such as study habits and difficulty in concentrating, and to mention social relations more than men.

Appendix L

The Springs of Happiness for College Students--
Implications for Assessing Scholarship Motivation

The academic achievement of students is usually of more direct concern to administrators and professors than is the "happiness" of the students. However, happiness is not totally unrelated to academic achievement when we consider that happiness is a major source of motivation, i.e., a person works at (or at least thinks about, or worries about) the experiences and environmental factors which contribute to his happiness. Thus, if a student is to attain maximum academic achievement it seems important that his happiness be related to his academic activity and achievement. If a student's academic experiences are unrelated to his happiness, then a major source of motivation for scholarship is missing for this student. Apart from its contribution to scholarship motivation, happiness is an important human goal in its own right, one that has been neglected by researchers.

For this study the question was asked, "To what extent is satisfaction and happiness for the college student dependent upon success and satisfaction in social relations versus success and satisfaction in the academic area?"

The approach for this study was to obtain a measure of happiness and correlate this variable with measures of social adjustment and academic adjustment.

Method

Subjects were 228 freshmen living in a large men's residence hall on the campus of a state university, all of the subjects (from a larger sample of 296 freshman men) who had fall quarter data on all measures relevant for this study. The analyses were replicated with spring quarter data for the 137 subjects having complete data for the spring quarter.

Feelings of Happiness, Social Adjustment, and Academic Adjustment were measured on three factor analytically derived categories from self-reports to questions (in the form of five-point rating scales) of a Reactions and Adjustment to Campus Environment Questionnaire. These categories were based upon clusters of items which consistently hung together in several factor analyses of fall quarter and spring quarter data. Although orthogonal rotations were used for the various factor analyses, the categories could be considered only semi-independent. These three variables are described briefly below, and described more fully in a companion report.

Happiness was measured by answers to three questions asking the extent and frequency of the subjects' "happiness" and "satisfaction with life," and by two questions asking how often the subjects had felt "particularly excited or interested in something" versus "bored." There was an indication in previous studies that the latter two questions (contrasted with the first three) reflect intrinsic interest in a task or job and should be related to achievement. However, for this sample all five items were highly related (clearly loading on the same factor) so were combined into a single category.

Social Adjustment was measured by items dealing mainly with satisfaction and success in various social ralations and feeling accepted by peers. Academic Adjustment was measured by items dealing with the subjects' satisfaction with their academic achievement, ability to concentrate and avoid distractions, and enjoyment of studies. Grade point average (GPA) was used as an objective measure of academic success.

Results

In regard to the main question posed by this study, happiness depends far more upon perceived social adjustment than upon perceived academic adjustment. For the fall quarter Happiness was correlated .65 with Social Adjustment, versus .19 with Academic Adjustment. The difference between correlations of .65 and .19 with 228 subjects is statistically significant beyond the .001 level. However the .19 correlation of Happiness with Academic Adjustment is significantly different from zero at the .01 level, in contrast with an essentially zero correlation between Happiness and GPA (actually -.06).

Similar results were replicated for spring quarter data--Happiness correlated .53 with Social Adjustment, .22 with Academic Adjustment, and -.07 with GPA.

Discussion and Implications

It does seem surprising that GPA is completely uncorrelated with happiness when we consider the great unhappiness of some students when they hear that they have made failing grades or feel they have done poorly on a test and the relief or pride of other students when they realize they have done well. The failure to find even a moderate positive correlation here is explained in part by the fact that happiness was measured several weeks before the end of the quarter, before grades were obtained. We might expect a moderate positive correlation between happiness and grades if happiness were measured shortly after the announcement of grades. However students should have some indication of their grades prior to the end of the quarter, based upon what they feel they have learned and grades on progress tests in their courses. This may be reflected in the moderate but positive correlation between Happiness and Academic Adjustment, which were measured at the same time.

Based upon this data, data from related studies, and upon observations of and interviews with dormitrry residents the following picture emerges. Grades are important to students and academic success does have an effect upon happiness. However test results are easily forgotten and there is a long time between tests; and for the majority of students studying is a necessary but painful and often anxiety arousing task which contributes to the motivation to forget. For the freshman social influences are more pervasive, always present. If we could measure Happiness immediately after results of tests are announced the relationship between happiness and grades should be higher. But most of the time freshmen are preoccupied more with social adjustment than with academic adjustment, and it is their feelings of satisfaction and success in the social area which makes the greatest contribution to their happiness.

The original thesis of this paper was that the source of a student's happiness is a major factor in determining motivation for scholarship, i.e., a person devotes much of his time and thought to the areas which have the greatest effect upon his happiness, the areas in which he is most preoccupied. Following this premise, students from this population are lacking a major source of scholarship motivation, i.e., their studies need to be made more related to their happiness. This may be approached in several ways, which will be touched upon only briefly and in a general sense in the following two paragraphs.

There are some students who, although having rather poor social adjustment, have strong motivation for scholarship. However for students who have special concerns about their social adjustment and lack scholarship motivation, it may be necessary to help them achieve a moderate degree of social satisfaction before they can become genuinely interested in their studies. For the majority of students, however, the main objective is to increase scholarship motivation. Scholarship motivation has been recognized as an individual difference which is important for academic success, and it is likely to be a difficult, although worthwhile endeavor to increase scholarship motivation in individuals. More amenable to change, perhaps, are (a) instructional programs to make courses and studies more intrinsically interesting to students in general, and (b) administrative programs to provide rather continuous "learning atmospheres" in the residence halls. One of the main implications of this study, then, is pointing out the need for programs to increase the relevance of scholarship for students' happiness--by providing learning atmospheres and/or increasing the appeal of programs of study.

There has been a recent surge of research on "campus cultures," usually in comparing scores or profiles (averages) of college characteristics or student body characteristics among various colleges and universities. The present study illustrates the relevance of comparing relationships (among variables), as well as averages. More specifically, the relationship between happiness and academic adjustment (relative to other areas of adjustment) may be taken as an index of scholarship motivation--which includes the orientations the student brings to the campus and the intrinsic interest contributed by courses of study presented by the college. In basic research to validate this approach we would expect this relationship between happiness and academic adjustment to be greater for over-achievers than for under-achievers, for responsible students than for students low on responsibility. In institutional research this index may be used to compare various colleges and sub-groupings within colleges; and this index may be used to assess the effectiveness of programs intended to make courses more interesting and to make study atmospheres more effective.

In institutional research this index may be used to compare various colleges and sub-groupings within colleges; and this index may be used to assess the effectiveness of programs intended to make courses more interesting and to make study atmospheres more effective.

In the context of the present study it appears that this method is sensitive for detecting some minor changes in scholarship motivation to be expected with maturity acquired during the freshman year. For example, it appears from the results reported above that students became less dependent upon social adjustment for their happiness (r=.65 fall vs. .53 spring), while there is a slight increase in the relation between happiness and academic adjustment (r=.19 fall vs. .22 spring). It is also interesting to note that in the fall (this data not available for spring) Happiness is correlated higher with a sub-category of Academic Adjustment reflecting enjoyment of studies and courses (r=.22) than with sub-categories reflecting ability to concentrate and avoid distractions (r=.13) and satisfaction with academic achievemtnt (r=.16). These differences are also small but suggest the relevance of this approach for assessing scholarship motivation.

Postscript. After the above report was completed the following additional data became available. (1) Content analyses were made of answers to open-end questions asking students to indicate "anything about yourself that you were dissatisfied with that you were not able to improve ... anything you hoped for or failed to accomplish about which you feel disappointed." From a sample of 114 men students (mostly freshmen used as subjects for the happiness report above) 64% responded with some form of academic stress, mainly disappointment with grades, while only 15% mentioned disappointment in social relations. From a sample of 47 women students, 70% mentioned stress connected with studies, while only 30% mentioned dissatisfaction in the social realm. (2) Answers of 147 freshmen with complete fall and spring data (from the sample used for the Happiness report above) were analyzed for two questions pertaining to worry -- "How much do you worry about studies and course work?" and "How much do you worry about social relations with other fellows?" Answers were in the form of five-point itemized rating scales, with alternatives ranging from "almost all the time" to "not at all." Reliability was adequate (test-retest correlations over a seven month period of .47 and .51 for these two variables). According to these answers more students worry significantly more about studies than about social relations ($p < .001$). Further, their worry about studies (and a companion item pertaining to worry about career plans) yielded one of the lowest (most unfavorable) mean of all dimensions on which self report measures were obtained. These results were obtained with fall data and replicated with spring data.

In short, it appears that studies cause a great deal of concern and worry to college students. It is interesting, however, that the above worry variables were essentially uncorrelated with the Happiness variable. This provides support to the view advanced (but not so successfully measured) by others, that positive motivational variables are relatively distinct from negative motivational variables. The findings in this postscript do not change the conclusions above about the relation of happiness with social adjustment and academic adjustment. However they do raise the intriguing question about the nature of happiness and of unhappiness, how both are measured, and the relationship between these variables and other socially important variables.

Appendix M

Students' Search for a Favorable Study Atmosphere -- Implications for Dorm Construction and Student Responsibility

This report includes several sets of data, each pertaining to students' search for a favorable study atmosphere, what they find, some of the effects, or implications of these findings for academic achievement. Samples and analysis procedures will be described for the various parts of the report. However it should be kept in mind that most of the data came from freshman men living in a large residence hall--although these students are fairly representative of the freshman class, they did live in a dorm which was mainly limited to freshmen, and this was a large relatively old dorm with rather sparse facilities (no study rooms, rather drab furnishings and upkeep, etc.) compared with more adequate residence halls now existing on this and other campuses. The data are highly generalizable to those numerous college settings with similar dorms and high proportions of freshman students. Conclusions should also be relevant for other categories of students and in other settings, but probably to a lesser extent.

Components of Academic Adjustment:

As an introduction to this report it will be useful to consider various personality and motivational characteristics contributing to academic achievement. Variables not introduced here are ones described in Appendix A, or in various other appendices.

The Responsibility variable was shown (in Appendix F) to be a consistent predictor of grades, even surpassing intellective predictors of academic aptitude in predicting grade point average (GPA). This variable reflects self-control, industriousness, and conscientiousness in getting a job done, and is related to choices by peers for roles of co-worker and leader. It was found that Responsible students are more likely to complete college, while students with irresponsible behavior are more likely to become dropouts. In short, this is a variable which is related to success and contribution in realms of life not limited to college grades. Concerning academic achievement, the data was interpreted to provide reinforcement for the hardworking and industrious college student--that the result is worth the effort.

Academic Adjustment is a self report variable which has had consistently high correlations with grades. However, in contrast to Responsibility, it has been correlated as high or higher with GPA from the current quarter than with yearly GPA. This is not surprising when it is considered that its main component, the Satisfied with Academic Achievement subcategory, is composed of four items asking respondents how satisfied they are with their academic achievement, how they seem to be doing in their courses, how satisfied they are with what they accomplish in their studies, and how confident they are of their ability to complete college. It does lend validity to these self report measures that Satisfied with Achievement (and the Academic

Adjustment composite) is substantially correlated with quarterly GPA (received at the end of the quarter, several weeks after obtaining the self report measures)--.52 in the fall and .61 in the spring for a large, representative sample of freshmen.

The other two components making up the Academic Adjustment composite category are ability to Concentrate on Studies, and Enjoyment of Studies. Concentrate on Studies consists of four items asking subjects how hard it is for them to concentrate and avoid distractions and one item asking about trouble in organizing and completing studies. Enjoy Studies is composed of two items asking subjects how much they enjoy studies, versus how bored they are in class and with their studies. For most purposes it has been the Academic Adjustment composite which has been used for examining relationships with other variables. However the Concentrate on Studies and Enjoy Studies subcategories have theoretical and practical relevance (over and above the rather straight forward Satisfied with Achievement component which amounts more-or-less to asking subjects to report how they are doing in their courses).

Correlations of these variables with grades and various other variables are shown in Table 1.[1] As shown in that table, the Satisfied with Achievement subcategory predicts GPA as well as or better than the Academic Adjustment composite--which it should if students realize how they are doing in their studies and report this in their answers. Of greater interest is the fact that Concentrate on Studies and Enjoy Studies both have moderate and statistically significant correlations with grades (e.g., correlations with Yearly GPA are .33 for fall quarter Concentrate on Studies and .35 for spring Concentrate on Studies, and .22 for fall Enjoy Studies and .25 for spring Enjoy Studies). Although multiple correlations were not calculated, these variables should boost a multiple R predicting GPA when combined with Satisfied with Achievement and intellective predictors (as reflected in Predicted GPA, based upon College Board Verbal and Math scores and High School Average), since Concentrate on Studies and Enjoy Studies have only moderate correlations with these other variables. More important, it should be useful to students and educators to know that concentration on studies and enjoyment of studies are reflected in grades.

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[1] Correlations in Table 1 were obtained from a sample of freshman men living in double rooms, fairly representative of the entire class of freshman men. Since some subjects lacked complete data (especially self report variables in the spring) each correlation coefficient was based upon all subjects with scores on both variables entering into that correlation. Row N's and variables correspond to those in Table 6 of Appendix K. The N for specific correlation coefficients can be estimated as slightly less than 228 for fall and slightly less than 137 for spring. As a frame of reference for evaluating statistical significance, correlations of .14 fall and .17 spring reach the .05 level, and correlations of .18 fall and .23 spring reach the .01 level.

Table 1

Correlation of Academic Adjustment Components with Grades and Other Relevant Variables

Variables	Satisfied w. Achiev't		Concentrate on Studies		Enjoy Studies		Academic Adjustment composite	
	fall	spr.	fall	spr.	fall	spr.	fall	spr.
Grades:								
Predicted GPA	.22	.38	.17	.25	.10	.11	.21	.35
Fall GPA	.52	.59	.34	.41	.28	.26	.48	.52
Spring GPA	.23	.61	.23	.29	.13	.23	.26	.45
Year GPA	.39	.64	.33	.35	.22	.25	.40	.50
Self report of Academic Adjustment:								
Relative Acad. Adj.	.41	-.07	.24	.01	.35	.25	.39	.00
Acad. Adj. composite	.83	.73	.87	.90	.64	.55		
Satisfied w. Achiev't.			.53	.53	.40	.28	.83	.73
Concentrate on Stud.	.53	.53			.42	.49	.87	.90
Enjoy Studies	.40	.28	.42	.49			.64	.55
Self report of Soc.-Emot. Adjustment:								
Social Adjustment	.05	.05	.03	.24	.06	.26	.04	.22
Relative Soc. Adj.	.12	.04	.01	.20	.08	.14	.08	.10
Happiness	.18	.07	.14	.13	.24	.37	.22	.09
Rmt. Compatibility	-.03	.03	-.07	.17	.01	.14	-.06	.12
Lack of Anxiety	.08	.10	.18	.29	.19	.22	.17	.25
Lack of Worry	.22	.17	.31	.21	.12	.10	.30	.20
Lack of Symptoms	.26	.09	.34	.24	.14	.17	.34	.18
Other self report variables:								
Homesick	-.02	-.02	.09	-.01	.03	.01	.04	-.04
Satisfied w. Coll. Exp.	.46	.22	.29	.33	.22	.39	.41	.34
Attitude toward Univ.	.32	.09	.33	.24	.38	.32	.42	.16
Opinion of Sect. Advisor	.03	.08	.06	.15	.06	.14	.07	.17
Mean Peer Rating Rec'd.:								
Health-Engendering Person.	.07	.05	.10	-.10	.22	.00	.12	-.04
Responsibility	.21	.22	.21	.10	.26	.19	.25	.16
Socially Adept	-.02	.03	-.05	-.03	-.10	.10	-.06	.00
Pers.-Soc. Adjustment	.08	-.12	.02	-.18	.07	-.03	.05	-.17
N	228	137	227	136	228	138	228	137

Of further interest, and providing further validation of these variables, are the following findings. All three components of Academic Achievement (Concentrate on Studies, Enjoy Studies, and Satisfied with Studies) have moderate and statistically significant correlations with peer rating of Responsibility, and with self reports of Satisfaction with College and Attitude toward University. The correlations with other personality variables and most of the various measures of social-emotional adjustment are lower (close to zero), as predicted. However, Enjoyment of Studies has a moderate and statistically significant correlation with Happiness (and with Social Adjustment in the spring but not in the fall). Concentrate on Studies has moderate and statistically significant correlations with Lack of Worry, Lack of Symptoms, and Lack of Anxiety. These latter correlations further validate these variables, and contribute knowledge to factors affecting learning--that enjoyment of studies is related to happiness in general (more so than other components of Academic Adjustment), and that ability to concentrate and avoid distractions (more than other components of Academic Adjustment) is related to emotional states of worry, anxiety, and physiological symptoms.

Satisfaction with Achievement is a personality-adjustment variable important in its own right. But we think of it as a result rather than a cause. In this case the correlation between Satisfied with Academic Achievement and GPA is probably due, mainly, to realization of how one is doing in his courses, and in his attempts to complete his assignments and learn his lessons. In its own right, however, it is important for individuals to base their satisfaction with achievement upon realistic expectations. An effective guidance service could contribute to achievement motivation by making students dissatisfied with their achievement when it is below their potential. On the other hand, students who are exerting all the effort they can and are still dissatisfied with their achievement may be helped to recognize more realistic expectations.

Concentration on Studies and Enjoyment of Studies may be thought of as causal, contributing to effective academic performance. That they are related, at least, is shown by the data of Table 1. It should be relevant to convey this to students, and relevant for educators to develop conditions which foster concentration on studies and enjoyment of studies. This should contribute to academic performance of students, as well as to their happiness and satisfaction in general.

Distribution of Study Time:

The data in Tables 2 and 3 describe amount of time studied by a sample of 120 men students, mostly freshmen, sampled to represent all sections of a large men's dorm. Notes in the tables describe the measurement procedures.

According to Table 2, only 7% of the students report studying less than two hours per day; there are 42% who study 2-4 hours per day, 30% who study 4-6 hours per day, 17% report that they study 6-8 hours per day, and 4% more than 8 hours per day. The more detailed frequency distribution may be seen in Table 2. Although students in

Table 2

Total Amount of Study Time on a Typical Day--Frequency Distribution

Amount of Time Studied	Frequency	Percent
0.0- .9	0	0%
1.0-1.9	8	7%
2.0-2.9	21	17%
3.0-3.9	30	25%
4.0-4.9	23	19%
5.0-5.9	13	11%
6.0-6.9	14	12%
7.0-7.9	6	5%
8.0-8.9	4	3%
9.0 plus	1	1%
Total	120	100%

Note.--The question asked, "How much time do you spend studying on a typical day? ("Day" includes daytime and night.)" The instructions were worded further to get subjects thinking in terms of specifics (rather than making loose estimates). "Think about today and several other specific days so that your estimate will be as accurate as possible. Then indicate how much time you spend studying in each of the following places on a typical day." Space was provided for respondents to indicate how much time they studied in own room in dorm, library, and other places (with instructions to specify any other places studied), and total amount of time. This question was administered in a booklet with other questions in the middle of the week before the last week of the spring quarter. Average (mean) amount of study time per subject was 3.99 hours per day. There is some indication that the amount of study time per day is somewhat less for periods earlier in the quarter, as indicated in the note to the next table. Note that means calculated from midpoints of the frequency intervals above will overestimate the actual mean of 3.99, because the amount of study time reported by most people came to a whole number or was closer to the lower level of the frequency interval than the upper limit, e.g., for the interval 3.0-3.9 most subjects total study time reported was 3.0, or closer to 3.0 than to 3.9.

Table 3

Location of Study on a Typical Day

	Sample N = 120		Sample N = 50	
Location Studied	Average hours per Student	Percent of total study time	Average hours per Student	Percent of total study time
Own Room	2.84	71%	3.00	75%
Library	.49	12%	.47	12%
Other	.66	17%	.54	13%
Total	3.99	100%	4.01	100%
Distribution of time studied in other locations:				
Other's room, own dorm	.02		.02	
Other's room, other dorm	.00		.00	
Fraternity	.08		.05	
Student Union	.08		.07	
Empty classroom	.15		.00	
Lounge or lobby of a dorm	.13		.19	
Misc. & unclassifiable	.20		.21	
Total	.66		.54	

Note.--Data summarized in this table was obtained from students' answers to the question described in the note to the previous question, obtained approximately 9-10 days prior to final exams. The subsample of 50 subjects shown above were actually contained in the larger sample of 120 subjects. As seen above the separate replication of their distribution of study time is quite similar to that for the larger sample. Similar data was obtained from this sample of 50 earlier in the quarter. (Study time data at that time was available for only 49 subjects from this sample.) Then average (mean) amount of study time per day was 3.33 hours in contrast to the 4.01 hours shown above. This agrees with observations and reports of students that they tend to "bear down" in their studies toward the end of the quarter. The earlier administration of this question to this sample of 50 was accompanied by a parallel question asking how much time they studied (in each location) yesterday, in order to provide a more concrete frame of reference. A correlation of .75 indicates that the amount of study time they estimate for a "typical day" corresponds closely to their immediate recall of time studied on a specific day, adding confidence to reports of study time obtained in this way. (Incidently, mean time reported as studied on the specific day was 3.50, compared to the mean of 3.33 hours per day for a typical day.)

general may tend to overestimate (or underestimate) their study time somewhat, the measurement procedure used and data described in the note of Table 3 warrant a fair amount of confidence in the student reports of their study time. No doubt, however, not all of the time they study is productive or efficient study.

According to the data in Table 3, approximately 71% of their study is done in their own rooms in the dorm, 12% in the library, and 17% in all other locations combined. Table 3 shows a breakdown of study time in other locations, in terms of average hours per student in each location--there is not enough study time spent in any one type of study area to single it out. A replication of the distribution of study time, shown in Table 3, agrees closely with the percentages indicated above and thus increases confidence in the data. It should be noted, however, that this is in terms of group averages. The study location varies considerably from student to student, with most students doing more than 80% of their studying in their own room, and a few students doing the main portion of their studying elsewhere.

Correlates of Study Time and Grades:

Table 4 shows correlations of study time and grades (GPA) with various other variables--most of the other variables selected because of their relevance to these variables, and several for comparison or exploratory analyses. The data for this sample of 49 subjects (referred to in the note of Table 3) is fairly representative of the larger sample--for example compare the correlations between GPA and self report measures of academic adjustment with the corresponding correlations for the larger sample in Table 1.[2] The main differences between this sample and the larger sample is a tendency for grade-relevant variables to be correlated higher with grades than in the larger sample. It is Spring GPA and Yearly GPA which are most relevant here, since data on the other variables were obtained during spring quarter (except when winter is designated). However Fall GPA is also included in Table 4 to indicate consistency over time.

In previous analyses reported, peer ratings of Responsibility and self reports of Academic Adjustment and its Satisfied with Achievement

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[2] The sample size is 49, but incomplete data for some subjects reduced the number of subjects entering into some correlations to the number shown in column N. As a basis for judging statistical significance, when N=50, r of .27 is significant at the .05 and r of .35 at the .01 level; when N=45, r of .29 is significant at the .05 level, and r of .37 at the .01 level; when N=30, r of .35 is significant at the .35 level and r of .45 at the .01 level. However there is increased confidence (over the level of statistical significance) for the correlations in this small sample, since those correlations in common with the large sample of Table 1 correspond closely to those in the larger sample.

Table 4

Correlation of Study Time and Grades with Relevant Variables

Variables	Grades			Hours Studied		
	Fall GPA	Spring GPA	Year GPA	Specific Day	Typical Day	N
Grades:						
Predicted GPA	.48	.50	.57	.34	.27	49
Fall GPA		.63	.85	.35	.47	49
Winter GPA	.57	.56	.81	.21	.24	49
Spring GPA	.63		.88	.59	.45	49
Yearly GPA	.85	.88		.45	.44	49
Self Report, Full Scale:						
Social Adjustment	.02	.16	.00	.14	.34	31
Attitude toward Univ.	.16	.17	.14	.43	.39	31
Acad. Adj. composite	.46	.47	.44	.33	.42	31
Satisfied w. Achiev't.	.62	.66	.69	.25	.32	31
Concentrate on Studies	.33	.33	.27	.24	.31	31
Enjoy Studies	.14	.14	.18	.44	.50	31
Self Report, Abrev. Scale:						
Social Adjustment	.18	.02	.03	.08	.26	45
Attitude toward Univ.	.09	.07	.09	.17	.10	45
Acad. Adj. composite	.37	.47	.49	.31	.31	45
Satisfied w. Achiev't.	.50	.64	.66	.28	.27	45
Concentrate on Studies	.18	.18	.20	.19	.25	45
Enjoy Studies	.26	.39	.32	.49	.45	48
No. Spend 1 Hr. With:						
In Section, Winter	-.23	.01	-.11	-.01	-.16	49
In Section, Spring	-.09	-.02	-.06	-.03	-.10	48
Out of Sect., S-Report	-.06	-.27	-.17	-.34	-.25	48
Out of Sect., S-Report, Winter	-.21	-.36	-.31	-.25	-.20	48
Sociometric:						
Number Known	.12	.28	.22	.16	.08	49
No. Spend Time With	-.04	-.03	-.01	-.16	-.24	49
Time With in Hours	-.04	-.14	-.18	-.17	-.10	49
Task Role	.48	.47	.54	.29	.30	49
Total Choices Rec'd	.35	.33	.38	.16	.19	49
Mean Peer Ratings Rec'd:						
Health-Engendering Personal.	.37	.31	.36	.12	.22	49
Responsibility	.61	.66	.73	.36	.40	49
Social Adeptness	.27	.21	.26	-.08	-.04	49
Pers.-Soc. Adjustment	-.01	-.06	-.11	-.40	-.37	49
Other:						
Request Univ. Housing	.33	.53	.47	.37	.31	49
Pledge Fraternity	.09	-.20	-.13	-.18	-.03	49

component had the highest and most consistent correlations with grades; the Concentrate on Studies and Enjoyment of Studies variables had moderate correlations with GPA. These relationships are replicated with this sample, with minor changes--Responsibility and Satisfied with Achievement are correlated somewhat higher with GPA (than in the larger sample), while Concentrate on Studies and Enjoyment of Studies are correlated somewhat lower with GPA (than in the larger sample).[3]

As one might expect, Study Time is correlated with grades. In fact the correlation is substantial--Spring GPA is correlated .59 with Hours Studied on a specific day and .45 on a typical day, while the correlations are .45 and .44 with Yearly GPA. Predicted GPA (based on academic aptitude and high school performance before reaching the college campus) is also correlated with Time Studied, suggesting that spending time on studies is a fairly stable trait over rather long periods of time, which is consistently related to high school and college academic performance. The correlations between Study Time and GPA are highest for the same quarter, however (.59 and .45 for spring quarter), indicating that current academic performance can be enhanced by any student spending substantial time on his studies.

A final correlate of grades is Task Role (choices received for roles of leader and co-worker combined), correlated .47 with Spring GPA and .54 with Yearly GPA. For contrast a variable composed of Total Sociometric Choices received (for all roles combined) was included. GPA has lower correlations with this variable than with Task Role (even though choices for Task Role are included in the Total Choices) indicating that it is mainly this task role rather than popularity in general (choices received from others for any role) which is related to grades. In other research (see Appendix A) choices for task roles of leader and co-worker have been found substantially correlated with Responsiblity, but, as here, Responsibility has an even stronger relationship (than task roles) with grades, e.g., here Responsibility is correlated .73 with Yearly GPA, while Task Role is correlated .54 with yearly GPA. Responsiblity is also substantially correlated with Study Time (.36, .40), but not as high as with grades (.66 spring, .73 year).

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[3] In Table 4 the self report variables appear twice. The complete categories are composed of items administered in two booklets, with abbreviated categories composed of those items from the first booklet. Only 31 subjects of this sample completed the second questionnaire booklet. Their data was used since it was based upon the more complete version of the self report variables. However, since this reduced the size of the sample, the data of the larger sample of subjects with scores on the abbreviated scales were also used. In summary, we have a sample of 31 subjects with scores based on complete variables, and a sample of 45 (14 additional subjects) with scores based on abbreviated versions of the variables. For those correlations in common with Table 1, the pattern of correlations from both of these samples corresponds with the pattern of correlations found with the large sample used for Table 1. However the magnitude of correlations between GPA and Enjoy Studies is reduced for the 31-subject sample, and the correlation between GPA and Concentrate on Studies is reduced for the 45-subject sample.

This pattern suggests that Responsibility is the key, and provides the following picture. Responsible persons (responsible motivation and behavior) spend adequate time on their studies, more than the average student, but not excessive amounts. (If they spent excessive amounts of time on their studies the correlation between Responsibility and Study Time would be higher.) The fact that Responsibility is correlated higher with grades than with study time suggests that responsible students use their time effectively, and that it is effective use of study time that characterizes the responsible student and contributes to grades. But responsibility is not limited to academic performance--it is also related to perception by peers of leadership and co-worker qualities. Furthermore, the person who does perform well academically is more likely to be chosen by his peers for task roles of co-worker and leader. (It should be noted that sociometric choices are made from everybody, with everybody a potential recipient, without campaigning. In many ways this is different from political campaigning, where motivation for prominence and campaign strategies may contribute more than Responsibility to getting elected.)

Study Time (in terms of Hours Studied on a specific day and a typical day) was referred to above in connection with GPA and its correlates. Now it might be useful to consider the correlates of Study Time from its own frame of reference (scanning down the Hours Studied columns of Table 4).[4] Time Studied is consistently related to GPA--correlated with Predicted GPA and GPA from previous periods (fall and winter quarters). However Hours Studied is correlated highest with current (spring) grades (.59 and .45) and with Yearly GPA (.45 and .44). Study Time, as described above, is substantially correlated with Responsibility (.36 and .40), and has moderate and statistically significant correlations with choices received from peers for Task Roles (.29 and .30).

Time Studied is also correlated with the self report academic adjustment variables with which GPA is correlated. Hours Studied, in contrast to GPA, has its highest correlations with the Enjoy Studies component of academic adjustment (correlation coefficients ranging from .44-.50). This strengthens the importance of enjoyment of or interest in studies as a contributor to academic performance, over and above the conclusions reached in the section above. Time Studied is a major contributor to academic achievement. It seems that enjoyment of studies mediates academic achievement through its influence on study time. Although no direct measure of this is included, it would seem that enjoyment of studies would also contribute to the effective use of study time in addition to the amount of time studied. The individual's own motivation must contribute to (be part of) his enjoyment of his studies. However these findings carry implications of ways to improve academic performance--increase the interest of courses and assignments, counsel with individuals to help them find personal relevance and interest in their studies (bolster the personal motivation element), and arrange for discussions and joint study sessions with other students so that they can influence each others interest in studies.

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[4] The terms Study Time, Time Studied, and Hours Studied are used interchangeably. In most cases when correlation coefficients are cited in the text they are cited in pairs, the correlations of Hours Studied on a specific day and on a typical day both correlated with some other variable.

As reported in Appendix K, there appears to be no relationship between social adjustment and grades, when social adjustment is measured by self report and peer ratings. However there is an unexplained negative correlation between peer rating (but not self report) of personal-social adjustment and study time (-.40 for Hours Studied on specific day and -.37 for typical day).

Several measures of social interaction were also correlated with GPA and time studied. Each subject was asked to respond on a form with how much time he spent with each person in his section of the dorm. The number of people spent time one hour or more with is the variable used in Table 4, when measured toward the end of spring quarter and toward the end of winter quarter. The relationship of these variables with GPA is close to zero.[5] Later in the quarter, from a sociometric questionnaire, number of people who said they spent time with subject was calculated for all subjects. This variable, shown in the Sociometric section of Table 4, was uncorrelated with grades. Actually, these r's were negative but low.

Amount of time (in hours) spent with others, in contrast to number of people spent time with, tended to have a negative correlation with GPA. Although these correlations of -.14 with Spring GPA and -.18 with Yearly GPA were not statistically significant for the relatively small sample, they suggest that spending too much time with others is incompatible with spending enough time on studies to earn good grades. Self report of number of people spent one hour or more without of the dorm section (which was often out of the dorm and often at fraternity) was calculated from self reports similar to the variables described above. This variable obtained in spring quarter was correlated -.27 with spring GPA and -.17 with Yearly GPA; the same variable measured in winter quarter was correlated -.37 with spring GPA and -.31 with Yearly

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[5] Although not shown in this table the number of people spent one-half hour or more with (on a typical day) was also calculated and found unrelated to GPA. As a measure of fidelity of self report, number of choices received from others as spending one hour or more was also calculated; report by others was correlated .69 with self report (of number of people spent one hour or more with), but uncorrelated with GPA.

GPA. All but one of these correlation coefficients are statistically significant at the .05 level. Also, a point biserial correlation (approximated by Pearson product-moment correlation run on computer) of pledging fraternity was negatively correlated with GPA after pledging (-.20 for spring quarter) but not before pledging (.09 fall quarter).

In summary, social interaction in terms of number of people interacted with in the section was correlated close to zero with GPA, tending to be slightly on the negative side of zero. But total amount of time spent interacting with others tended to have a negative correlation with grades, while number of people spent time with outside of the section had a definite negative correlation with GPA.

The same findings hold for Study Time (on a typical day and on a specific day)--number of people spent time with outside of section spring and winter is correlated -.34, -.25, -.25, -.20 with Hours Studied on specific day and on typical day. The other time-interacting-with-others measures also have consistently negative correlations with Study Time, suggesting that too much social interaction is incompatible with effective study.

Now, to gain some perspective. There appears to be only a slight negative relationship between amount of social interaction and grades, although there is stronger indication that spending high amounts of social interaction (when especially time consuming) is incompatible with study time, and thus hinders academic achievement. Yet (from the findings reported in Appendix K) college students, especially freshmen living in dorms, have a strong need for social interaction. Frequently this interferes with the studying of others, as well as reducing the individuals' own opportunity to study. Following from an implication above, it would be useful to channel this strong need for socializing along a more constructive path. Although it might require a creative approach and extensive coordination at first, students could be organized into small groups and pairs with common study interests and needs, and in such a way that responsible and academically motivated students exert influence upon the others. This would not take the place of individual study, but would help to meet the students' need for social interaction while increasing the amount and effectiveness of study time, and increase enjoyment of and interest in studies.

An interesting finding from an exploratory variable included in the correlations of Table 4 concerns preference for university housing. According to significant correlations of this variable with GPA and Time Studied, freshmen who choose to live in university dorms the next fall (when they will be sophomores) are more likely than students preferring apartment life in town to have satisfactory grades (correlations of .53 and .47 in Table 4) and spend sufficient time studying (.37 and .31 in Table 4). This is explained partially (although perhaps not explained away) by several students not planning to return to the university the next fall (to be classified as dropouts) probably being included in the category of students not signing for university housing for the next fall. To avoid breaking the continuity of the main topic of this report, further information about this variable is described in Attachment 1-m at the end of this report.

Students' Search for a Favorable Study Atmosphere--the Problem:

In Appendix K frequency distributions of students' answers to several open-end questions were reported, coded into a comprehensive set of categories covering most or all aspects of things that several hundred students reported as concerning them about the campus milieu and their own experience with it. It was seen that the content of the question can make a great deal of difference in the things they report--which is a form of validity of their answers. Data from students' answers to several open-end questions is relevant to understanding the problem of concern here--the study atmosphere and related effects upon students.

One question asked students to describe the things they were disappointed or dissatisfied with which they would like to improve. It was shown (from Table 3 of Appendix K) that stress over studies was mentioned far more than any other category of disappointments. In women it took mainly the form of concern over inadequate study habits, while men expressed mainly concern over grades; however this sex difference was attributed, in part, to subtle differences in wording of the question to the two samples.

Another question asked freshmen in a relatively old and sparsely furnished dorm for any suggestions they would like to make about dorm life (Table 11 of Appendix K). Although most answers involved the physical structure of the dorm, the greatest proportion (of any subcategories) of those answers were about improving study facilities (e.g., providing adequate study rooms and making students' rooms more conducive to study), while a large proportion of the answers not pertaining to the physical structure of the dorm also showed concern about improving study conditions.

Another question asked the first quarter freshmen about the things that concerned them, problems that confronted them and things they would like to change (Table 2 of Appendix K). By far the largest proportion of answers were in the realm of study problems--distraction by noise in the dorm and the need for quiet, no place to study, interruptions when studying, socializing and giving in to other temptations when they should be studying, study habits, difficulty concentrating, lack of interest in studies, just not studying or procrastinating.

These answers reflect the things that are salient to students, or rather the things made salient to students when asked a particular question. (Stress over studies and concern about study atmosphere were not mentioned as frequently when the question directed their attention more to the campus environment, with these questions seeming to orient them more toward academic-intellectual areas and the university as an institution, e.g., administration, rules and regulations, etc.)

The prevalence of students' concern over studies received further support in answers to objective questions. Several questions asked how much they worry about each of several topics, with alternatives expressed in terms of five levels of frequency of worry (Table 4, Appendix K). In the fall quarter 17% reported worrying about studies "almost all the time," 44% "quite often," with only 14% reporting "occasional" worry over studies, and no one reporting "not at all." Answers showed almost as much worry over study in the spring. No other source caused this much worry.

From content analysis of open-end answers referred to above, and from one to be reported below, noise and distractions in the dorm are a major hindrance to effective study. According to answers to an objective question in this area, shown in the top of Table 5 of this report, 21% of the students reported that noises and distractions in their section of the dorm make studying difficult "almost all the time," 35% "quite often," while only 1% answered "not at all" and 26% answered "occasionally."[6] In this connection it should be considered that some

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[6] Note that the middle alternative of this question is worded, "a moderate amount." In the context of its middle position between the two more extreme alternatives on either side this is an intermediate position. Although the word "moderate" is used and it is the intermediate position, when we have a skewed distribution such as found in the answers to this question, many or most of the students responding to this alternative were probably thinking in terms of a stronger position than implied by the word "moderate" or neutral, i.e., this alternative was an intermediate position between noises and distractions "quite often" and "occasionally." Their answers implied less than reasonable noise and distraction. The same situation applies to the middle alternatives of the concentration questions, which are worded in terms of a rather ambiguous "some trouble," which is further defined by its position as less undesirable than the adjacent alternative of "fairly much trouble" but admitting much more trouble concentrating than the other adjacent alternative of "not much trouble." For the final concentrate on studies item of Table 5 there was no intermediate alternative. Although the largest proportion of subjects responded "I am able to continue working but find it difficult," it should be recognized that this is the next less undesirable alternative after the "I am able to get very little studying done" alternative. There was actually a rather large gap between these two alternatives that should have been filled with an intermediate alternative. Based on the tendency of people in general to underchoose socially undesirable responses, and the prevalence of disruption from noise and distractions reported in connection with the open-end answers of Table 6 and observations and interviews, it seems that this is underestimated by answers to the last item of Table 5. The answers of many or most of the subjects replying to this alternative might be better interpreted as meaning, "when there are noises and distractions I am able to keep studying, but not nearly so effectively or steadily as when they are absent."

Table 5

Frequency Distributions of Responses to Items Measuring Noise and Distractions and Ability to Concentrate and Resist Distractions

How often are there noises and distractions in your section of the dorm which make studying difficult?

Fall	Spring	
21%	12%	(1) almost all the time
35%	26%	(2) quite often
17%	28%	(3) a moderate amount
26%	31%	(4) occasionally
1%	3%	(5) not at all

How much trouble have you had being able to concentrate?

Fall	Spring	
10%	7%	(1) a great deal of trouble in this respect
12%	27%	(2) fairly much trouble in this respect
50%	44%	(3) some trouble in this respect
27%	20%	(4) not much trouble in this respect
1%	2%	(5) no trouble in this respect

How much trouble have you had avoiding distractions?

Fall	Spring	
8%	9%	(1) a great deal of trouble in this respect
13%	16%	(2) fairly much trouble in this respect
41%	50%	(3) some trouble in this respect
35%	21%	(4) not much trouble in this respect
3%	5%	(5) no trouble at all in this respect

When other fellows in the dorm are engaging in informal social activities (conversations, bull sessions, card games, etc.), how difficult is it for you to concentrate or make yourself stick to your studying?

Fall	Spring	
8%	5%	(1) I cannot make myself work at these times
28%	33%	(2) I am able to get very little studying done at these times
38%	43%	(3) I am able to continue working but find it difficult
26%	19%	(4) I am able to shut out all outside influences and continue working when I need to

Note.--The frequency distribution for each item is in terms of percentage of students indicating each alternative. The sample was 147 freshman men who had complete fall and spring data. Data from this sample was quite similar to a larger sample representative of the class of freshman men.

sections of the dorm may be relatively quiet, compared to most, and subjects from these sections (actually all sections) of the dorm were included in this sample. From interviews with students and other data, it seems that there is a moderate amount of variation between various sections of the dorm in terms of noise and distractions. However, it is difficult for a particular section to avoid noise and distractions, since they spill over from adjacent sections.

Frequency distributions of answers to three questions about ability to concentrate on studies and avoid noises and distractions (when they occur) are also shown in Table 5. Although these answers indicate that ability to concentrate on studies and avoid distractions is a major problem, the extent of the problem as shown in Table 5 is probably underestimated--as explained in footnote 6, and by comparison with the data reported below in connection with Table 6.

Toward the end of fall quarter, the following open-end question was asked (in the booklet after the question about Hours Studied referred to in a section above). "In the space below please describe any problems, distractions, or hindrances which you have encountered in trying to get your studies done." From a total of 292 codable booklets available, only 8% of the subjects answered "no problem" or the equivalent. Table 6 shows the content analysis of answers from a sample of 148 students (mostly freshmen) selected to represent all parts of the large men's dorm. The prevalence of study problems, at least some of the time, and much of the time in many sections, is indicated by the 92% who responded with some form of study problem.

The distribution of their answers may be seen in Table 6. Although the major portion were in terms of noise and distractions from outside the room, it is interesting to see that 11% of the subjects were perceptive enough and honest enough to report temptations to socialize as a major hindrance to their studies--this source is probably underestimated in their answers, and would be reported as greater if there were more students with sufficient perceptiveness and insight to recognize this. Due to selectiveness in reporting what is salient at the time, variations in perceptiveness, etc., the distribution of hindrances to study shown in Table 6 may be taken as only a rough guide. For example, distractions from roommate is probably underestimated considerably; but answers could be coded into this category only if subjects thought of this, were willing to write it, and mentioned roommate specifically (for the coder to see).

Among the most useful functions served by this data is to indicate the prevalence of hindrances to study, and sources of the hindrances. Probably the most general conclusion to draw from the distribution of answers is that most subjects report others as the main causes of noise and disturbance, interruptions, temptations to socialize, and other hindrances to their attempts to study. In fact other students (as external sources) account for more than 80% of the 1.29 responses per subject, with more than 80% of the subjects mentioning one or more external source. (In contrast, relatively few mention the main study

Table 6

Frequency Distribution of Distractions and Hindrances Found by Students In Trying to Do Their Studies--In Terms of Percent of Students Mentioning Each Problem

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27% Noise and distractions in own room:

- 5% Distractions by roommate
- 22% Interruptions by people coming in room or to room

67% Noise and distractions from outside of own room:

- 16% Other rooms specified (approx. one-third mentioned rooms above)
- 14% Hallway, including phones
- 2% Other area specified, including TV room, shower
- 35% Area not specified

11% Give in to temptations to socialize--bull sessions, card games, go out, etc., after starting to study or when should be studying

20% Personal (motivation, study habits, etc.)--can't concentrate, don't feel like studying, too lazy, can't get interested in studies, worry about social relations and personal problems, etc.

5% Misc. and unclassifiable

Other Information:

148 = Number of subjects (N)

191 = Total number of problems mentioned

1.29 = Average number of problems mentioned per subject

Note.--After a question asking how much time studied, and where, the following question was asked. "In the space below please describe any problems, distractions, or hindrances which you have encountered in trying to get your studies done." It is the answers to this question which are summarized in the content analysis above. From a total of 292 codeable booklets, 25 subjects (8%) answered "no problem" or similar answer. From the remaining 92% of the booklets, 148 were selected as representing students from all sections of the dorm, and used for the content analysis summarized above.

problem as an internal source--personal motivation, inability to concentrate, etc.) If most of the students think of others as causing the main hindrances to study, they must be among those hindering the studies of others. Here we have a vicious circle--most of the students would like relief from the noise and social distractions which hinder their study (and thus indirectly contribute to their stress over studies), yet they cause their own share of it, without fully realizing the extent to which others share their concern for a more favorable study atmosphere.

Table 7 shows a frequency distribution of answers (from the same sample) of attempted solutions to these study problems. Students were not so vocal here, having only .45 responses per subject compared with 1.29 responses per subject (on the average) about study problems. This proportion (of problems to solutions reported), as well as the rather ineffective solutions appearing in Table 7, indicate a great lack of resources for creating the favorable study atmosphere needed by so many students.

More adequate solutions to improvement of the study atmosphere will be considered in a section below. This section ends with Table 8, which consists of quotes from subjects' answers describing ways in which students have negative effects upon the studies of other students. This table, which is self explanatory, provides further insight into some of the less frequently mentioned sources of study hindrances in Table 5--the interruptions and temptations (from studies), by the too frequent and pervading socialization described in Appendix K. (Answers to a companion question, about ways students can have positive effects upon the studies of other students, are given in a section below.)

Some Effects of an Unfavorable Study Atmosphere:

Some effects of an unfavorable study atmosphere have been implied above, and in Appendix K. We find, for example, that ability to concentrate on studies is consistently related to grades, and that noise and distractions from other students and other forms of social interaction reduce ability to concentrate. Dropouts, who are in academic trouble due to low grades, are characterized by difficulty concentrating on studies. Amount of time studied has a strong relationship with GPA. Enjoyment of studies and ability to concentrate on studies seem to influence the amount of time studied, as well as having a direct effect on grades (probably, through effectiveness of study and attention in class). On the other hand, there is some indication that the sheer amount of social interaction is related to grades, with a more clearcut finding (stronger relationship) that too much time socializing interferes with study, which in turn effects grades.

In the section immediately above noise and distractions from other students were perceived by most students to be a major hindrance to their studies. This points out the need for future research to obtain objective measures of noise and distraction in various dorm sections and study

Table 7

Frequency Distribution of Attempted Solutions to Study Problems--In Terms of Percent of Students Mentioning Attempted Solutions

22% Go somewhere else:

- 10% Library
- 3% Empty classroom
- 1% Someone else's room
- 4% Other
- 4% Location not specified

11% Stay in own room and try to avoid distractions--lock the door, lock the door and pretend to be out, try to put up with them, run fan to drown out noise

5% Appeal to others--ask people to be quiet, when too many people in room try to run them out, try to declare study hours (but this seldom works)

7% Personal--stay up night before to avoid distractions, force myself to forget other things going on, drink coffee to stay awake, try to ignore the noise, don't procrastinate, start studying in afternoon so I can play around at night

Other Information:

148 = Number of subjects (N)

67 = Total number of attempted solutions mentioned

.45 = Average number of attempted solutions mentioned per subject

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Note.--After the question about distractions and hindrances to study (described in note to previous table), the following question was asked. "Also, describe anything you have done to overcome them (problems hindering you from studying), if any." The sample described in the previous question was also used for the content analysis of answers summarized above.

Table 8

Ways in which Students Have Negative Effects upon the Studies of Other Students

In an introductory paragraph to a questionnaire, it was suggested that students constitute a major source of influence (in the campus milieu) upon other students, but that the nature of this influence is not clear. This was followed by questions asking about various kinds of positive and negative effects. One question asked subjects to describe ways by which students have negative effects upon the studies of other students. Answers referred mainly to five kinds of influence--make noise and distractions which make studying difficult, interrupt others who are trying to study, tempt others to participate in other activities when they should be studying, deliberately lure others away from their studies for participation in other activities, serve as a model or example of procrastination and bad study habits. Following are some representative answers from students, arranged in no particular order (since the five types of influence can't be clearly separated by the different answers).

With so many different types of people around you, you often find some students that make it hard to study by making noise or a disturbance of some kind. Also, a student tends to place social get-togethers before his studies. One student can easily persuade another to play chess, go get something to eat, etc., and do his studies later.

Many try and succeed in luring you away from your studies to play cards, go to movie or get something to eat and as a rule it usually works.

They sometimes persuade you to do something else when you should be studying (especially recreation).

The overall effect of other students on one's studies is negative. Too often, when you need to be studying, a card game or bull session hinders any efforts in this direction. As I see it, college is not a social function, and I prefer to be alone most of the time.

The negative effect is building an atmosphere which is not conducive to study. There are always those who don't need to study or won't study and the student exposed to them will go along with them.

Some students are always in other students rooms and this doesn't help studying very much.

In having irregular times for study and distractions while studying they may greatly limit the study of other students. This may cause the student to go other places besides the dorm for study.

A student who is always goofing off, going places, and making disturbances hinders other students from their studies and tempts them to join him in the fun.

Some are just the opposite of my first statement (i.e., if you have a goof off roommate his study habits will rub off on you).

Congregations in rooms makes studying difficult. Hell raisers who try to get other people to go along with them tempt people away from studies or bother them with incessant chatter about what they've done or will do. People in general may interrupt studies with conversation or something of this nature.

areas and to relate this to time studied, to effectiveness of study, and to academic achievement. Although an extensive study of this nature has not been done in this program of research, a more limited study in this domain was done, with results described in Table 9.

For this study grades of students in crowded rooms were compared with a large control group of students not in crowded rooms. Freshmen in crowded rooms were those starting the fall quarter in triple rooms, or in several pairs of rooms in which one room of the pair had no entrance to the hall and the students had to enter their own room through the room of the students next door. Students in the dead-end room (who had to enter through the other room) and students in the other room were included in the "crowded room" sample. More than their share of noise and distractions were reported by students in these crowded rooms, as illustrated by the following quote from a student's answer to an open-end question about dorm life during the fall quarter. "I think that the double rooms on the end of the halls should be done away with. It is almost impossible to study with rooms like this. I think there should be study rooms within the dorm."

For the analysis comparing freshmen in crowded rooms with freshmen in double rooms, fall, spring and yearly GPA were included, along with self report measures from fall quarter. GPA was available on 45 students in crowded rooms, but self report measures of adjustment were available for only 25 of these subjects. It is interesting that their rate of return of self report questionnaires was much lower than the rate of return for students not in crowded rooms, in itself suggesting the disruptive process of living and trying to do one's work in quarters with more than their share of disruption. It would not have been relevant to include self report measures from spring quarter, since some of the students had moved to other rooms and the information about who had moved was not available at the time of this study.

As seen from Table 9, the students in crowded rooms have lower academic adjustment and social-emotional adjustment scores on 15 of the 17 variables included in the analysis. Of most importance is GPA. Although students in crowded rooms have somewhat lower Predicted GPA (than control subjects), this difference does not approach statistical significance. Fall GPA was lower than Predicted GPA, indicating a tendency for the students in crowded rooms to be underachievers. Spring GPA, when most of the moves of students from crowded rooms had occurred, had the least difference when compared with control subjects. Fall GPA was definitely lower for students in crowded rooms (than for control subjects not in crowded rooms), but this difference only reached the .10 level of statistical significance (which would be the .05 level with one-tailed test, which many investigators would consider appropriate in this case). Although Yearly GPA had approximately the same mean difference, smaller variances (due to this being a more stable measure based of more courses) enabled the difference to reach the .01 level of statistical significance.

Table 9

Comparison of Students in Crowded Rooms with Other Students (with students not in crowded rooms)

Variables	CrR vs FD	Students in Crowded Rooms (CrR) Compared with Other Students			
	M. dif.	N(CrR)	d.f.	M. dif.	t
Grades:					
Predicted GPA	-1.17				
Fall GPA	-2.24	45	290	-2.46	1.82†
Spring GPA	-1.59				
Year's GPA	-2.39	45	264	-2.92	2.60**
Self report of fall Academic Adjustment:					
Relative Acad. Adj.	- .34	25	227	- .38	1.77†
Academic Adj. composite	.00				
Satisfied w. Achiev't.	+ .08				
Concentrate on Stud.	- .02				
Enjoy Studies	- .09				
Self report of fall Attitude toward Univ.:					
Attitude toward Univ.	- .13				
Self report of fall Soc.-Emot. Adjustment:					
Social Adjustment	- .14				
Relative Soc. Adj.	- .36	25	227	- .39	2.03*
Happiness	- .20	25	227	- .22	1.83†
Rmt. Compatibility	- .59	25	227	- .66	3.67***
Lack of Anxiety	- .10				
Lack of Worry	- .13				
Lack of Symptoms	+ .11				

Note.-- The mean differences in the first column are between scores of students in crowded rooms (CrR) versus the freshman doubles sample (FD). The remaining columns show a comparison of CrR subjects and Others (a large control group of all FD students not in crowded rooms) for variables on which mean differences were large enough (in relation to size of standard deviations) to expect significant differences. Means, standard deviations, and N's for FD on the various variables can be found in Appendix A. Since CrR subjects were included in the FD sample, variance attributable to CrR subjects was subtracted from that of FD to obtain means and standard deviations for the control group of students not in crowded rooms (Others). Standard deviations of CrR subjects were quite similar to those of FD. For purposes of replication means and N's of Others can be determined from the information in this table and the tables for FD.

* p<.05, two-tail test
** p<.01, two-tail test
*** p<.001, two-tail test
† p<.10, two-tail (which would be p<.05, one-tail test)

Since the grades of students in crowded rooms are significantly lower than other students, it is surprising that self reports of academic adjustment are not similarly lower, especially the Concentrate on Studies subcategory of the Academic Adjustment composite. The failure to find significant differences here, when finding them for grades, may be accounted for in part by the loss of 20 subjects from the sample when we go from grades to self report measures. However, finding a borderline significant difference on Relative Academic Adjustment (in which students compare their academic performance in college with academic performance back in high school), suggests that they use a different frame of reference, a more socially desirable response set than control subjects. Also, considering that rate of return was less (than average) from crowded room subjects, it is likely that it was the less responsible students who did not reply to the questionnaire, the students who would be most likely to be distracted from their studies; their self reports of academic adjustment could not be included in the analyses since not available.

In addition to having significantly lower grades, subjects in crowded rooms had lower (than average) scores on seven of the eight measures of social-emotional adjustment and attitude toward the university. The differences on three of these variables were statistically significant--they had significantly lower scores on Relative Academic Adjustment, Happiness, and Roommate Compatibility.

Search for a Favorable Study Atmosphere--Solutions:

As a preliminary to this section we present students' answers to questions about some study habits and problems. Table 10 shows the frequency distributions of answers (in terms of percentage of subjects answering each alternative) to a series of objective questions. The sample consisted of 57 freshmen from all areas of the large men's dorm referred to above. The data was obtained early in winter quarter, and pertained to their fall quarter experience. As may be seen on the second page of Table 10, the distribution of difficulty concentrating is approximately the same as reported for the larger sample in Table 5 above. With a question worded differently, 54% of the subjects reported "much of the time I am irritated by noises and distractions," with four percent reporting even more concern from noise and distractions. That these students are not complainers in general, however, is shown by most (70%) indicating that the emphasis on neatness and orderliness in rooms is "about right and/or most students are okay in this respect." Contrary to what might be expected by administrators and voiced in public statements of a small vocal minority of students, the balance (30%) indicated that there was "not enough emphasis on neatness and orderliness," with no one from this sample indicating that there was too much emphasis. In the context of the other questions it is likely that the subjects were reacting especially to the need for orderliness (in contrast to neatness), which could include orderly behavior as well as upkeep of room.

Table 10

Some Student Preferences about Study, and Perceptions of Dorm Conditions which Affect Study--Frequency Distributions of Responses

Percent	Questions and Alternatives
	Do you believe a dormitory room should be more of a place for studying or for socializing?
25%	(1) it should be kept quiet for studying most of the time
52%	(2) more for studying, but also moderate proportion of time for socializing
19%	(3) about half and half
4%	(4) more for socializing, but quiet for studying a moderate proportion of time
0%	(5) mainly for socializing; reserved for studying on only very special occasions
	How important to you is it to be able to do most of your studying in your own room rather than other places you have found on campus, e.g., library, etc.
58%	(1) strongly prefer to do most of my studying in my room
19%	(2) this is fairly important to me, but not really necessary (as long as I can do some of it in my room)
23%	(3) it doesn't matter much -- I have other places to study or don't study much
	How many hours do you prefer to study on a typical week night?
3%	(1) one hour
16%	(2) two hours
39%	(3) three hours
42%	(4) four or more hours
	How many hours a night do you prefer to study in your room?
11%	(1) little or none
5%	(2) one hour
28%	(3) two hours
34%	(4) three hours
22%	(5) four or more hours
	What time do you want to go to bed on most week nights?
2%	(1) 10:30 or before
23%	(2) 11:00
23%	(3) 11:30
41%	(4) 12:00
7%	(5) 1:00 am
4%	(6) 2:00 am or after

What time do you like to get up on most week mornings?

72% (1) 8:00 or earlier
19% (2) 8:30 - 9:00
9% (3) 9:30 or later

Distractions during study time are more annoying and irritating to some persons than to others. How are you affected by noises and distractions?

4% (1) I am annoyed by almost any noise or distraction, i.e., they annoy or irritate me considerably
54% (2) Much of the time I am irritated by noises and distractions
42% (3) Only occasionally irritated by noises and distractions
0% (4) Usually prefer noises and distractions rather than quiet

With the ordinary noises and distractions found in a residence hall, how hard is it usually for you to concentrate on your studies?

4% (1) very difficult to concentrate
21% (2) fairly hard, but I can concentrate occasionally
48% (3) a moderate amount of difficulty, but I can concentrate when necessary
27% (4) fairly easy to concentrate, but sometimes I find it hard
0% (5) very little trouble concentrating

Do you believe the residence hall emphasizes neatness and orderliness in rooms too much or too little?

0% (1) far too much emphasis on neatness and orderliness
0% (2) somewhat too much emphasis
70% (3) about right; and/or most students are okay in this respect
30% (4) not enough emphasis on neatness and orderliness; and/or most students are somewhat lacking in this
0% (5) should be much more emphasis on this; and/or most students should be much neater and more orderly than they are

The data on how many hours they prefer to study on a typical week night is somewhat less than the actual study time reported for spring quarter in Table 2--here 19% indicated they prefer to study two hours or less, which is too little from the standpoint of educators; 39% indicated they prefer to study three hours, which would probably be considered borderline for satisfactory academic performance; while 42% indicate they would prefer to study four or more hours. Since there is a strong relationship between time studied and grades, it appears important for a majority of students to recognize the need for more study.

According to the data of Table 3, somewhat more than 70% of students' studying is done in their own room in the dorm. That corresponds closely to the preferences for study location shown in Table 10--58% strongly prefer to do most of their studying in their own room, and for 19% it is important to do at least some of it in their own room. When asked whether a dorm room should be more of a place for studying or for socializing, only 4% indicated more of a place for socializing, and then with the qualification that it be kept quiet for studying a moderate proportion of time. No one thought it should be mainly for socializing. Most of the subjects indicated it should be more for studying than socializing, with the greatest proportion indicating that some balance should be maintained between the two--52% responded "more for studying, but also moderate proportion of time for socializing." As seen in sections above (from content analyses of open-end questions about hindrances to study, and from objective questions about noise and distraction and difficulty concentrating) the situation is not as the students would like it--there is far more distraction from socializing than maintenance of a quiet study atmosphere, even in the preferred "sanctuary" of one's own room.

The final data from Table 10 pertains to preferred bedtime. There are 48% who would prefer to go to bed by 11:30 and 89% who would prefer to go to bed by 12:00. Yet, according to observations in the dorm and interviews with students, it is usually too noisy for the light sleeper to observe his preferred bedtime until well after midnight. Other research, as well as personal observations, has shown the detrimental effects of inadequate sleep upon intellectual performance. This is a special problem for any student with difficulty sleeping and for all those with early morning classes (which the administration must schedule to fully utilize classroom facilities).

It appears that one major avenue to improve the study atmosphere is with the students themselves, and the informal social norms they evolve. Although most students attribute noise and distraction (which hinders their study) to other students, many of them are also caught up in the social whirl that produces these distractions. Although most prefer their dorm room to be more of a place for studying than for socializing, they interrupt each other while studying, tempt each other to socialize when they should be studying, and distract each other with noise from outside the room. Although most prefer to go to sleep before midnight, and some much earlier than this, they maintain or allow these distractions to continue past the preferred and needed bedtime. The majority of the students seem unaware that their peers share their interest in obtaining a more favorable study atmosphere for study. In a sense they need protection from their own social norms, and support for their personal desires of a favorable study atmosphere.

One way to help, then, is simply to provide them with this information. Beyond this some guidance may be useful in helping them set realistic norms--which allow sufficient socialization, but provide a better balance in the direction of reducing distractions and maintaining a favorable study atmosphere. Since most students share this interest, there should be sufficient motivation for them to work out the details themselves through some form of self-government in each section and for the dorm as a whole if given appropriate support and guidance from an interested administration. In fact, with the tendency of college students to resist enforced authority this would probably be accomplished best by collaboration between administration and students, with a large share of responsibility carried by the students. This would be an avenue for fulfilling social needs while obtaining the study atmosphere desired by most.

This recommendation is based upon the desires of most students. However there seem to be a small minority of "hell raisers" and self centered students who are not very concerned with their own studies nor the rights of others. In previous research in a men's dorm (Alsobrook, 1962) a situation was described in which a small gang of irresponsible students (including two who had been elected to campus office) engaged in a series of minor vandalisms, and generally distracted other students on the floor from their studies and from more responsible social interaction. Although private ratings of these individuals by the other students showed a marked decline in the esteem and responsibility with which they were perceived by their peers, most of those peers put up with or condoned their antics, and on occasion joined them for want of more interesting things to do. Several more responsible students who attempted to cool the situation without tattling to administrators were given little or no support by the majority of their peers. In the present research study many students privately criticized the minority of hell raisers, as indicated in their answers to open-end questions and interviews, yet took no action to eliminate this major form of disruption. It appears that students do not realize the extent to which most of their peers fail to condone such irresponsible behavior privately, and are quite reluctant to take action individually. Again, simply informing students of the extent to which these norms of desired responsibility are shared, and fostering discussion of this among themselves should help create a stronger norm to resist these disturbing few. However some guidance is needed in formalizing this more responsible set of norms and finding effective but fair ways of controlling or eliminating the disturbances of the most irresponsible and inconsiderate few.

Another factor which has made this situation (control of the troublemaker) hard to deal with is the paternalistic policy of some deans and housing administrators (perhaps in accordance with presumed mandates from parents and others), which dictates that students must live in the college residence halls. That policy means that the most effective method for eliminating irresponsible behavior is unavailable--ejecting disturbing students from the dorm. If college students are to learn responsibility for their own actions, ejection of a person by the recipients of his disruptive behavior can be a dramatic and effective lesson to him, as well as a service to the majority. If such a policy were included in the norms of conduct, the threat from its existence should be effective in most cases--as long as the policy were enforced when necessary to show that it is real.

As with other approaches to establishing student norms, this would probably work best if initiated in collaboration with students rather than as an edict from external authority. However, students need to be informed of the need for such a policy and that it is possible, and shown that responsible efforts to achieve a favorable study-living atmosphere will be supported by the administration. Most students express an interest in participating in student government in some way if it makes a useful contribution and if some training or guidance is provided. They are skeptical of the service orientation of their elected leaders (at least in freshman, dorm government). Chances for success would be increased by obtaining widespread student participation, and with more support for truly Responsible students.

With social norms conducive to a favorable study atmosphere, it would be easier for other positive resources from students to come into operation. Table 11 provides some quotes from students which suggest various ways of promoting a favorable study atmosphere, as well as other ways in which students may have favorable effects upon the studies of other students (which would be easier to obtain in a favorable study atmosphere than in existing conditions).

Development of responsible student norms, especially if endorsed and administered by students themselves, should contribute to more effective study atmosphere. However this would be hard to achieve without appropriate physical facilities, e.g., hard to achieve in the dorms used for this program of research (described in Appendix K and M, and in Appendix N)--without some renovations and/or changes of building use. The data in Tables 12 and 13 are relevant to this topic. As noted above, many of students' observations and suggestions in answers to open-end questions pointed out the need for study lounges and student rooms more conducive to study.

According to the data of Table 12, from a sample of 116 freshmen representing all parts of the large men's dorm, 82%-89% of the students believe they would use a study lounge with a quiet study atmosphere if available (89% if we count the 7% who indicated they would use it only 1-3 hours per week). There were 57% of these who indicated they would

Table 11

Ways in which Students Have Positive Effects upon the Studies of Other Students

A questionnaire asked subjects to describe ways in which students have positive effects upon the studies of other students. Answers referred mainly to five types of influence--exchange and discuss ideas, set a standard and challenge through competition, influence others to study by various warnings and threats, encourage others, help them with their studies, serve as a model or example of good study habits. Following are some representative answers from students, arranged more-or-less in this order.

Bring new idea from all over the state and nation. Status in maintaining good grades.

Students are constantly helping each other in studies. They each give their own opinion about some question and try to show someone else why they believe this. Often they have specific examples to prove their theory. In this way a student is exposed to a variety of ideas, and he sometimes accepts these or formulates entirely new ones of his own.

The positive effect is to instill a competitive spirit. Man is basically an egostistical animal who does not like to be outdone.

Each student feels that he is in competition with his fellow students to make good, or acceptable grades.

Some students try to help their friends when they see they are flunking by telling them things like they will be drafted, or they will flunk out.

A good student will encourage and help other students in their studies.

I know of only one person like this, he is exceptionally smart and friendly enough to help you when you need help. Although he enjoys living by himself and does a considerable amount of studying and never plays cards, he is still part of our so called clique.

A serious student (not a bookworm) influences people positively in studies by example, by encouragement, by helpful ideas, and with explanations of difficult material. May also remind person of studies, and does not distract person from studies by constant unacademic ideas or conversation.

I believe that other students, as a whole, have a negative effect on ones studies, but there are some advantages. People tend to select an ideal student who makes good grades, and this gives the person the incentive to study more to achieve this goal.

In setting specific times for study in a quiet atmosphere students may effect the study habits of others.

When a student is studying every time you go in his room, it makes you think that you should study too.

If you have a studious roommate his study habits will almost definitely rub off upon you.

Note.--Further information about the context of the open-end question is given at the top of Table 8.

use it more than six hours per week, with 26% interested in using it more than 10 hours per week. There were 85% who thought an effective study lounge would help them concentrate on their studies and improve their grades; of these, 62% thought it would "help a good deal."

Although there were a somewhat larger percentage of students (99%) who indicated they would use a recreation lounge (than a study lounge), they would use it less frequently than a study lounge--only 22% believed they would use a recreation lounge six or more hours per week, compared with 57% who believed they would use an effective study lounge that much. It is also enlightning to see that 51% believe that a recreation lounge would help reduce noise and discipline problems (and thus improve the study atmosphere). The frequent socialization in the dorm suggests that well planned recreation lounges would help meet the social and recreation needs of students, and thus help keep their manifestation from study areas.

The alternatives to the questions of Table 12 were arranged so that they formed rating scales, with a subject receiving the score for each question indicated by the number of the alternative he chose. Intercorrelations of scores on these six scales (of the six items shown in Table 12) are given in Table 13. As indicated by substantial intercorrelations between the three study lounge items (.58, .58, .59) there was a strong relationship (but far from one-for-one relationship) between one's plans to use study lounge, belief in its use helping studies, and belief that others would use it. Own use of recreation lounge was related to belief in others using it (r of .48). It is interesting that belief in study lounge helping one with his own studies was significantly correlated with belief in recreation lounge reducing noise problems (r of .37, $p < .001$).

A familiar finding referred to above involved the high proportion of students concerned about noise and distractions and their need for a more favorable study atmosphere and relief from the constant pressure to socialize. The same sort of finding appears here. Although the answers are not directly comparable due to different wording of alternatives, it appears there are far more students who feel the need for an effective study lounge than those who attribute this need to others. This may be quantified by using the means from Table 13 and comparing own use of study lounge and recreation lounge (for which the response alternatives are identical) relative to attributed use by others of study lounge and recreation lounge (for which the response alternatives are identical). Following is the comparison.

	Study Lounge		Recreation Lounge
How often use it yourself?	3.56	>	3.02
	∨		∧
How many others (do you believe) would use it?	3.28	<	3.90

Table 12

Students' Expected Use of Study Lounge and Recreation Lounge--Frequency Distributions of Responses

Suppose there were one or two study lounges (with a quiet study atmosphere enforced) on each floor of your dorm:

How often would you use it?

11%	(1)	None
7%	(2)	1-2 hours per week
25%	(3)	3-5 hours per week
31%	(4)	6-10 hours per week
26%	(5)	More than 10 hours per week

Do you think it would help you concentrate on your studies, i.e., help you improve your grades?

3%	(1)	No, definitely not
12%	(2)	No, doubtful if it would make much difference
23%	(3)	Probably help some
62%	(4)	Yes, help a good deal

How many of the other students on your floor do you believe would be helped with their studies and their grades by a study lounge?

1%	(1)	None
18%	(2)	Only a few
39%	(3)	20%-50%
35%	(4)	A majority
7%	(5)	Almost all of them

Suppose there were a small recreation lounge on each floor of your dorm:

How much would you use it?

3%	(1)	None
27%	(2)	1-2 hours per week
48%	(3)	3-5 hours per week
13%	(4)	6-10 hours per week
9%	(5)	More than 10 hours per week

Do you believe that having such a recreation lounge would reduce the noise and discipline problems on the floor or increase them?

16%	(1)	Would increase the noise and discipline problems
33%	(2)	Would make little or no difference
51%	(3)	Would reduce the noise and discipline problems

How many of the other students on your floor do you think would use it?

1%	(1)	None
4%	(2)	Only a few
23%	(3)	20%-50%
46%	(4)	A majority
26%	(5)	Almost all of them

Table 13

Intercorrelations and Means for Items Pertaining to Preference for Study Lounge and Recreation Lounge

	If there were a quiet study lounge			If there were a recreation lounge		
	How often would you use it	Would it help you concentr.	How many others would use it	How often would you use it	Would it reduce noise problems	How many others would use it
If there were a quiet study lounge...						
How often would you use it?		.58	.58	.12	.23	.03
Would it help you concentrate?	.58		.59	.19	.37	.11
How many others would use it?	.58	.59		.20	.23	.14
If there were a recreation lounge...						
How much would you use it?	.12	.19	.20		.12	.48
Would it reduce noise problems?	.23	.37	.23	.12		.10
How many others would use it?	.03	.11	.14	.48	.10	
Range of scale points	1-5	1-4	1-5	1-5	1-3	1-5
Intermediate point on scale	3.00	2.50	3.00	3.00	2.00	3.00
Mean	3.56	3.41	3.28	3.02	2.34	3.90
Standard deviation	1.24	1.59	.91	1.00	.77	.91

Note.--Alternatives for each question are shown in Table 12 (along with frequency distributions of responses). The set of alternatives for each item form an ordinal scale. For each set of alternatives the least favorable alternative was considered as having a scale score of 1, then next most favorable alternative a scale score of 2, etc., with the most favorable or highest alternative having the highest score. A subject's response to each item was scored according to this scale. These are the scores that enter into the correlations, means, and standard deviations shown in this table. The range of scale points and intermediate point on the scale are shown for each alternative as a frame of reference for interpreting the means. N=116.

From comparison of these means it appears clear that students believe they would use a study lounge more than they believe others would use it, but that they would use a recreation lounge less than they believe others would use it. This is consistent with and strengthens the views referred to above, that most individuals seek a favorable study atmosphere more than they believe others do, while they perceive a norm of conforming socialization in others. It is not surprising, then, that they tend to conform their own behavior more to the perceived norms of socialization than to norms conducive to study. A favorable study atmosphere would be easier to achieve if students could recognize the need and desire that others have for a favorable study atmosphere, and reinforce each other in their attempts to create it.

Further, students perceive that effective study lounges and recreation lounges would make a major contribution to reducing the noise and distractions which hinder study, along with improvement in acoustical qualities, furnishings, and atmosphere of student rooms and the dorm as a whole. Data reported in a section above indicates that grades are affected adversely by unfavorable physical facilities for study (e.g., crowded rooms versus double rooms) and distractions which reduce effective study time and ability to concentrate. It would seem well justified in terms of improved study atmosphere for a college or university to expend the funds needed for acoustical materials, more useful and attractive furnishings and decoration, and most of all conversion of strategically placed student rooms into study lounges and recreation lounges.

According to the consistent findings reported in Appendix N, students make most of their friends and spend most of their time in their own section of the dorm. In order to enhance the effective use of study lounges, then, it would seem strategic to have a small study lounge in each section of the dorm (to serve the students there, primarily) rather than (or in addition to) large, centrally located study lounges. This is the same principal that business men have recognized in establishing suburban shopping centers and paying premium real estate prices for locations where people already tend to congregate.

Along with a study lounge for each section it would also be appropriate to have a small meeting-discussion room in each section and a small recreation lounge for each two sections. This could be done easily by conversion of a student room into, respectively, small study lounge, small discussion room, and small recreation facility. Then students would have the options of bull sessions in their own room or the recreation lounge, serious discussions in own room or discussion-meeting room, and study in own room or study room. With relevant social norms, for which the students themselves are responsible, it would increase the opportunity for a student to have a favorable study atmosphere in his own room, or go to a convenient study lounge for a change of scenery or when his roommate uses his own room for socializing. These facilities would also increase the opportunities for serious discussions and joint study sessions (without disturbing others) which are considered by many educators and students to be an important part of higher education. This arrangement would maintain the opportunity for informal social interaction, which is also an important part of education for life.

A final recommendation for improving study atmosphere, in terms of effective study and exchange of ideas, involves several useful services that could be performed for students--and by students, with appropriate guidance and coordination. These services would be in the form of providing tutors, study companions, study and discussion sessions. These are provided in many colleges and universities, formally and informally, on a small scale. But the idea here is to assess the specific needs and desires of individuals, then arrange the major logistics of getting appropriate people together. That such services are widely desired by students is illustrated by the data in Table 14--which shows the percentage of students answering yes to each of the services asked about in the questions. Although this data was from a relatively small sample of 55 subjects, most of these were from a sample representing all parts of the large men's dorm and found to have similar scores to the larger samples on a variety of variables.

From Table 14 it may be seen that a majority of students would like to find a tutor, and a study companion, and special study sessions, and discussions for at least one specific course they were taking at the time. Although such services were not everyone's cup of tea, there were a sufficient number (majority) of students wanting to participate in each of these programs if available. The need is made more evident by the fact that only 27% reported already having a good study companion. But, interestingly, when the data of these students already having a study companion was analyzed separately, it was found that 92% of them still expressed interest in a service to find another good study companion (92% of these students answered "yes" to the second question of Table 14 compared to 56% of all subjects answering "yes" to this question). And 65% of those who already had a good study companion still expressed interest in finding a tutor (65% of them answered "yes" to the first question, compared to 64% of all students who answered "yes" to this question). Apparently, then, having the experience of working with an effective study partner increases the likelihood of wanting to repeat this experience with someone else.

Although only 36% expressed interest in serving as tutor to others, the limited number may reflect the realistic perception of capacity, as much as willingness. If even 25% of the students were willing and able to tutor other(s) in their strongest subject, a broadly useful service could be achieved by effective utilization of their effort and talent, and this would not put too great a time burden upon any one student serving as tutor. In fact, if the old adage that "the best way to learn something well is to teach it to someone else" is true, this would provide a useful educational experience for the tutor as well as for the tutored.

Table 14

Student Preferences for Study Companion, Tutor, and Study Sessions--Frequency Distributions of Students' Answers

Many students would like to collaborate with other student(s) taking the same course as themselves, or obtain some tutoring or study help from someone who is especially good in the subject and can help them. Please answer each of the questions below to indicate your interests in this. For each question you answer "yes," estimate the preferred hours per week, then write the name and number of the course(s) to the right.

Would you like to have someone tutor you or provide help in studying some course(s)?

yes - 56% no - 44%

Would you like to have someone to study with some of the time, without having it in the form of tutoring?

yes - 64% no - 36%

Do you already have someone who helps to serve this function for you? If "yes" write his name and where he lives.

yes - 27% no - 73%

Are there any courses you have had or are taking which you understand pretty well, and which you would be willing to spend a few hours tutoring a fellow resident or helping him with his studying?

yes - 36% no - 64%

Would you like to participate in an occasional discussion group about implications and broader aspects of some subject, not limited to specific assignments?

yes - 62% no - 38%

Would you like to have a good professor give a talk to your section summarizing the main points of his course, e.g., once after the first 2-3 weeks of class, the week before mid-terms, and about twice during the last half of the quarter? If you answer "yes", be sure to indicate which course(s).

yes - 95% no - 5%

If such a program were undertaken with a professor making this kind of presentation to the section, do you believe it would be useful to have the residents meet in small study-discussion groups afterward to summarize and check with each other the points covered in his presentation?

yes - 57% no - 43%

Sometimes administrators complain that study lounges and tutoring services are not used very much when provided. One relevant point is that it does not require high usage to justify their existence, as long as they help a few, and help to unsaturate an overburdened system enough to improve the overall study atmosphere. More generally relevant, however, is the point that the existence of a study lounge or a tutoring service does not mean that it is an effective study lounge or an effective service. For example, all too often study lounges are too large, not conveniently located, lack the attractive but efficient atmosphere needed to promote study there. Rarely are these facilities coordinated with relevant social-study norms, engendered by the administration but carried on through student responsibility. These norms must include expectations by students that the study facility is for study. Too often, however, the housing administration promotes an opposite expectation in students, by temporarily housing students in available study lounges during the first part of the year--a time when there is the greatest demand for dorm space, but a time which is crucial for developing expectations and habits which will be carried over for the rest of the year. This is a high price in reduced study effectiveness that students must pay for temporary housing of a small percentage of students.

There have been few if any systematic programs to assess the study-companion and tutor needs of individuals, then make appropriate matches (except for wholesale assignment of groups with similar major or aptitude to the same dorm section, which is not the same as matching individuals appropriately). This is an area which needs careful research as well as action. Some of the procedures referred to in Appendix H are applicable here.

These recommendations seem relevant and justified by the data presented in this report. However the ultimate effectiveness of new and existing study lounges, other structural features to improve study atmosphere, and student services will have to be evaluated by systematic research. It is proposed that relevant physical facilities and service programs will work most effectively only when relevant social-study norms become the responsibility of students themselves, whether by chance or through creative planning and hard work. These social factors will need to be assessed along with the physical structures and service programs to determine the ultimate effectiveness of the combinations recommended here, or any other combination of conditions thought to effect study atmosphere and academic motivation.

To avoid making too much from the picture emerging from the data to an educational-researcher (the author), this report closes in the words of students. The quotes below were taken from answers of several hundred students, arranged in an order to define some problems and effects of students' search for a favorable study atmosphere, then some solutions suggested by the students. The quotes below are given some continuity by brief introductory, transitional, and summary statements by the author. They are supplemented by those quotes of Appendix K which are also relevant to conditions that contribute to a favorable or unfavorable study atmosphere.

Study Problems and Solutions, as Reported by Students:

Transition from the academic standards of high school to the demands of college is difficult for most students. Although warned, they do not fully realize the amount of time they will need to study and that they will need to improve their study habits. Some students may not realize this even by the end of their first quarter, or may never understand it. In some cases this situation leads to feelings of bewilderment and hopelessness, which in turn may reduce the incentive to try or even to remain in college. Difficulty with this transition is illustrated by the following quotes.

> When I was in high school, I did not have to study but a little to make good grades. In college it's different. I had to learn how to study and it wasn't easy. I sat up many nights trying to study history and couldn't remember what I had studied when I finished. I think that this quarter I have better study habits and I think that I will have even better ones at the end of this quarter.
>
> I was completely dissatisfied with my fall quarter grades. I only had a 71 average for the whole quarter. After a 90 average in high school it is a big let down. I know how my average was so low and I plan to put a great deal more time on my studies this quarter.
>
> Working hard and making low grades is discouraging.
>
> Classes are so hard up here as compared to high school. At first I had a feeling of hopelessness but I think I'm getting over that now.

With some students social relations are such a strain that it can effect their studies, i.e., anxiety over social relations can debilitate a person to the extent that it reduces his overall effectiveness. This is illustrated by the following quote, as well as implied by quotes further below regarding need for privacy and quiet.

> A feeling of self-consciousness was one of my major problems last quarter since I was new and not used to such a crowd. This feeling carried over into my study and made it hard for me to study in the library to much advantage. With God's help I am now overcoming this problem.

The study problem lies within the motivation of many students. This may take the form of procrastination in studying, or avoiding studies altogether, yet sometimes seeming oblivious to the probable outcome. The problem may be expressed in the form of disinterest, which contributes to inability to concentrate. Some students may spend more time worrying about their studies than doing something constructive about them. These problems are illustrated in the following quotes. Although these are major problems for some students, other data indicates that the tendency to procrastinate and to substitute worry or diversion for constructive study is common to most students in some degree.

> The main problem I faced last quarter was the inability to concentrate. I couldn't sit down and study like I should have. I would wait until the night before a test to study and I did rather poor on most of my tests.
>
> Last quarter my study habits were terrible. At times I even went to movie the night before I had a test, without being prepared for it. [This is a student who was dissatisfied socially: "I wish there were some way to improve my social status"--make new friends, besides those from same home town, dates.]
>
> When I get a chance I go out rather than stay in and study, I go out. Night before a Zoo test some friends asked me to go to the city. I went. My studies don't interest me enough and I am afraid I don't know what I am going to do in the future. It worries me more than other things. There's no real dissatisfaction that I have--I like it here.
>
> Inability to concentrate--reading some books in English my mind wanders from the book.
>
> My study habits aren't as good as they should be. This is mainly caused by lack of interest in the subject.
>
> Exam had me worried for a long time before I took it, because it's a 500-1000 word theme and I knew I was going to do badly on it.

Temptations to do other things, especially socialize with nearby students, seems to be one of the main problems which keep many students from their studies. At other times students may attempt to study, but be interrupted by others coming to their room to see them or their roommate. In some cases it is a welcome distraction, in other cases the student may prefer to continue studying, but doesn't for fear of offending the visitors. In either case the effect of frequent interruptions on study is the same. Examples are illustrated vividly in students' descriptions of informal activities in the dorm, in the table at the end of Appendix K, as well as illustrated by the quotes below.

> My study habits weren't what they should have been. I often went out when I found something more interesting to do than study.
>
> Six or eight people usually gather in a room to play a few games of rook... Studies seem to fade into the background as one of your buddies calls out, "Let's go play some rook." The social developments are abundant, but I feel that the loss of much study time overshadows them in a considerable amount.
>
> Twenty four hours per week is spent in this group... The members made good grades in high school and know their way around pretty good. But this has a bad effect on grades, and a good one in that you have someone that you know to do things with...

> Playing cards is a distraction. It tempts you and makes it harder to study or keep your mind on studying.
>
> I have a hard time getting away from things I enjoy in order to study.
>
> Always something else to do.
>
> People knocking on door constantly.
>
> Interrupted by fellow students.
>
> Always people coming in to chew the fat.
>
> I am distracted by visitors.
>
> I think I made too many friends last quarter. I know this sounds stupid, but almost everyone I met visited me at various times of the night and day. I would sit down and talk with them, have bull sessions, etc., whenever they came into my room. I didn't have the heart to run them out so I could get back to my books.

In the dormitory other students provide a nearly constant source of satisfaction. For the student who is socially uneasy, or the many who would like to be more adequate socially, this social need makes them all too easy prey to succumb to social diversions when they should be studying. A social asset can become an academic liability, when the need is too great or when carried to excess, as happens for too many.

> Something that bothered me was the failure to be liked as a friend by some individuals that seem to be the type of person I would like to be friends with. But I was pleased with the friendliness of the boys in the dorm the first week when I was almost completely friendless. The boys seemed to try to be friends with everyone and get to know everybody. Generally, I was pleased with the ease with which good friends are made.
>
> Social relations are often carried a little too far. There is always the constant pressure of being in the in-crowd, and I think this factor flunks out more people than anything else.

A more obvious and frequently mentioned source of distraction from studies is the noise and other commotion which frequently occurs in other rooms and the hallways when students are in their own rooms trying to concentrate on their studies.

> I wish, especially in this section of the dorm, that the noise, and confusion, and loud laughter would end during the quiet hours at night. Therefore, the ones who want to study could do so without being interrupted while studying for tests and other homework. I don't particularly mind having to come to the library every night to study, but it seems to me that we ought to be able to study in our dormitory rooms at least some of the time. The only time I can study on my floor is

> after 2:00 a.m. except on weekends; at that time there is nowhere to study except the library.
>
> Trying to study in the dorm presented problems. Boys right across from us cut up until 12:00 when the proctor wasn't around. Having to go to the library a lot to catch up when I fell behind got to be tiresome.

It is a fairly typical student who has difficulty studying and difficulty with his study habits (which usually means, simply, not settling down to work often enough nor steadily enough), letting himself be tempted away from his studies too much of the time by social activities.

> I was thoroughly dissatisfied with my study habits and concentrating ability. I did not really begin studying until about the mid-term. I would let my mind wander and if someone came to the room and wanted to do something I would drop my studies and leave. I have tried to change and now have pretty good study habits but my mind wanders and I will have to read something several times to get the meaning.

It is the exception rather than the rule to find a student who can achieve a balanced social life, yet put aside the temptations to socialize and ignore the noise and distractions when it is time to study.

> To me residence hall life has been a change of challenges and temptations. But pushing aside these temptations results in the disciplined college student.

More typically we find a student who attempts to study. However his interest in his studies is borderline or weak and his study habits are not good. When noise and distractions outside his room occur, through no fault of his own, he finds it difficult to concentrate. When he is interrupted by others coming to his room he lacks the fortitude to tell them he is busy studying and/or feels the need for diversion to relieve the boredom and anxiety of studying and/or is too tempted by the temptation to socialize rather than study. He wishes he had more support and example from his peers in his endeavors to study, and recognizes a degree of interference beyond his own control. His motivation is not strong enough for him to concentrate with the noise and distractions, to end the interruptions, or to resist the temptation to socialize instead of studying.

> I wasn't satisfied with my study habits. Some of the blame is on me for my lack of interest and some of it is on the hall as a whole for making too much noise. People would congregate in our room and also play radios too loud around our room. All of these things were distracting.

> My study habits were very poor. The reason was partly my own lazy self, but distractions added noticeably to this. I remember many times that my friends wanted to play cards instead of studying. Sometimes I felt the same. The 12 to 2 A.M. wrestling match in the room above was absolutely heart-rending. The mysterious midnight burglar announced the arrival of synthetically over-happy students.
>
> The noise in the dorm seemed a little too much at certain times. Many times while studying interruptions from people knocking on the door and visiting seemed most distracting. Sometimes the showers, which were next door, also distracted my studying, especially when the boys would sing. Sometimes I think that certain friendships became a little too strong--too much visiting and not enough consideration.

Most students desire more opportunity for quiet, uninterrupted study periods. For some this is more essential than for others.

> I need a nice quiet place to study where I can be by myself, but I haven't found that yet.
>
> The one thing I would prefer more of is privacy. I would not like a room to myself except for the advantage of studying undisturbed. The one thing I would like to have is a place that is quiet and free from disturbance to go to, to either be alone or talk privately with a friend. It is rather difficult to talk to someone or even think clearly with disturbance in the dorm halls.
>
> I have found no place here to relax and it bothers me. I love to sit and read and listen to the radio, but no place in dorm to do it.

As indicated in the above quotes, an opportunity to read, think, and discuss serious things with others in a quiet but serious atmosphere can contribute to the educational process over and above the mere studying for grades. There is little chance for the unusually thoughtful and intellectual student, such as the ones writing the following statements, to have their positive characteristics encouraged and brought to have some influence upon less serious students.

> Satisfaction is personally derived by being able to really get to the heart of a presentation and understanding it. This has its greatest relevance to classes. It is very satisfying to be able to grasp a rather obscure point, albeit very important, and be able to evaluate it. I guess then that achievement results when courses are designed to allow thought rather than to call for information from students.

> What bothers me is lack of any intellectual activity pertaining to the dorm. Mainly, there is very little intellectual stimulus in the dorm. Most boys are content with learning the subject, making the grades, then forgetting it. There is too little real thinking!

As illustrated by the following quotes, there are various changes in the dormitory structure which could be made to create a more favorable study atmosphere--for example, removal of specific sources of noise and distraction, decoration to improve morale and provide an atmosphere of efficiency and seriousness, soundproofing, provision of convenient and appropriately furnished study lounges, and small meeting rooms.

> I think the residence halls are too cold and drab. If they were modern and official looking, I think the boys would study more. I think that surroundings and mood have a lot to do with one's study habits.

> My room is located directly in front of the telephones on our wing. Just about every night from 8 o'clock to 10 o'clock there is a group of boys waiting to use the phone. And when a group of boys gets together there is a lot of talking going on. It is absolutely impossible to study in my room during this time.

> Last quarter I had a very hard time studying in the dormitory. It was noisy nearly all of the time. If I studied I had to go to the library. I feel there should be facilities in which to study nearer the dorms.

> Noise in dorm is not conducive to study. Special study rooms are needed. Students should also have meeting and talking rooms on all dorm floors where they can talk and discuss with each other, problems in school work and help each other.

Apart from physical changes in the dorm, the most obvious solution is to reduce the general level of noise and distractions. This might be done by enforcing quiet hours. One student, even though not joined by the majority to this extent, would accept a curfew to improve the study atmosphere. Although other data (See Appendixes D, K) indicate that most students are satisfied with their section advisors (upperclass students paid by the housing division to be in charge of a section of approximately 30-40 students), some are unsatisfactory, and most lack the leadership skills and support from students and administration to channel the social activities in the dorms in a way to reduce the noise and distractions to a level for reasonable study. Both the students themselves and the section advisors are unwilling and unable to control the small minority who make the most disturbance. These points, obtained in observations, interviews, and other data, are illustrated in the following quotes.

> Enforcement of quiet hours from 10 o'clock on would solve a lot of study problems since there's no sense in not being able to study in one's own room (except on weekends!).
>
> Because of the lack of a curfew in the men's dorm I stay up later than I feel I would if I was restricted to come in at a certain time. Also there is always people walking up and down the halls at times at night; especially around the times I study or want to go to sleep.
>
> I really wish that this floor had a section advisor that would enforce quiet hours. Our present section advisor makes a large contribution to the excess noise and hell-raising. It is very difficult to study and impossible to sleep until 12:30-1:00 a.m.
>
> First there is really no supervision, especially on the noise part. Our section advisor does a fairly good job keeping the noise down to what it is considering the boys, but I still cannot study in the dorm.
>
> The main things of concern that I had, had to do with only one boy. When he had to study, everything had to be quiet, but when he did not have to study, he was disturbing everyone else.

In addition to structural changes, students realize the need for self discipline and student responsibility, to achieve an appropriate set of rules and social atmosphere for effective study. From other data it appears that the majority of students would welcome an opportunity to increase their own participation in self-government and to participate in creating an improved study atmosphere. These ideas are fairly well captured in the following quotes, but don't reflect the extent to which these ideas are silently endorsed by the majority.

> As you can tell, I don't think the atmosphere at my present residence is conducive to study. I feel that environment plays a big part in a student's success. If dormitory living conditions could be improved, there would probably be a more compatible atmosphere for study. But along with this "building improvement plan" must go "responsibility."
>
> I am especially bothered by the need for self-discipline of many in the dorm, so that they can maintain the best possible grade in their school work.
>
> Residence hall life cannot substantially be enhanced by the administration. It is up to the person living in the dorm to be responsible and respectful, thereby making life among his peers more peaceful and much more profitable.

> Through student government such as the Freshman Men's Council the material aspects of the dorm may be altered according to the desires and needs of the majority. In this way new innovations would be more appreciated and taken care of rather than a hand out from the impersonal administration. Projects initiated and completed to fruition by the students themselves will be extremely successful.
>
> I feel that teenagers are some of the most capable persons in an emergency that can be found. Half of the education we receive will not be from the classrooms but from the experiences that we encounter. I feel that more attention should be given to the student as an emerging adult and not have the University take over as parents. After all we are here to master, and the only way we will is by ourselves and by taking on our own responsibilities.

It is the author's opinion that college students can take far more responsibility than they are usually given. However, as with many roles, a responsible role will be taken by most only when the opportunity is provided. It will take a creative and trusting administration to provide appropriate opportunities for student responsibility, provide leadership and cooperation to facilitate student participation and guide them toward ways in which their efforts may be used effectively, while, at the same time, avoid stifling student initiative.

Attachment 1-m

Correlates of Preference to Live in University Dorms

The data reported here was obtained in an exploratory analysis, prompted by findings referred to on page M-12 in relation to correlations in Table 4. This data is summarized separately here since it does not fit in with the continuity or main theme of the report comprising Appendix M.

As an exploratory analysis, whether or not an individual signed to live in university housing for the following year was coded 1 or 0. A point-biserial correlation (approximated by Pearson product moment correlation run on computer) was run with grade, time studied, and other variables. It is interesting to see from Table 4 that this choose-university-housing variable was correlated .53 with Spring GPA and .47 with Yearly GPA, .37 with Hours Studied on a specific day and .31 with Hours Studied on a typical day. Subjects had the option of requesting university housing or living off campus the next year. Just under half requested to live in university dorms (coded 1 for this analysis). Most of those not requesting university housing preferred to live in apartments in town. However those not requesting university housing, probably, also included several who were not planning to return to the university the next year (and thus considered dropouts, probably with below average grades as a group), and several who goofed in terms of not responding to the opportunity of signing for university housing at the appropriate time. Some of these latter individuals partially explain the lower grades and study time of those not wanting to return to the dorms.

Although not shown in Table 4, the preference for university housing variable was correlated .47 with peer rating on Responsibility, .25 with peer rating on Health-Engendering Personality, .38 with sociometric choices for Task Role, .44 and .46 with self report of Enjoy Studies, .38 and .40 with Satisfied with Academic Achievement, .25 and .20 with Attitude toward University, -.24 with pledge fraternity, and -.29 with number of people spent one hour or more with outside of section winter quarter (but not spring quarter). It is interesting that this variable is uncorrelated with Concentrate on Studies, while having substantial correlations with the other two self report academic adjustment variables, probably reflecting the unfavorable study atmosphere they found in the dorms. A speculative interpretation suggests that choosing university housing (in preference to apartments off campus) is related to academic orientation and responsibility, with the more intellectually oriented and responsible students preferring to be nearer the center of university life; however they don't perceive the dorms as being conducive to good study atmosphere. The relationships reported here are probably exaggerated due to several dropouts and goof-ups being inappropriately included in the category of students preferring not to live in university dorms.

Appendix N

Friendship as Circumscribed by One's Niche in the Dorm

There have been several approaches to the determination of friendship choice. For example the theory that attraction of two people to each other is related to similarity of opinions, values and other characteristics. (A test of the similarity hypothesis is reported in Appendix H, concerning roommate compatibility.) One factor which several studies have found to influence friendship choice is "propinquity." This refers to ease of access, opportunity to interact, and is usually determined by physical distance, living close to each other or for some other reason being placed in contact with each other. However, propinquity includes psychological distance, which may not correspond exactly with physical distance, and often determined by social boundaries. For example Festinger, et al. (1950), in a study of interaction patterns in college married student housing, found that frequency of social contact was highly related to physical distance between apartments. However, people living in end houses (those directly next to the others but with the entrances facing in a different direction) were less likely to interact with their neighbors, while those with apartment entrances facing onto the same courtyard were more likely to interact with each other, physical distance being held more or less constant.

The purpose of the present study was to examine friendship choice, and choice for other social roles, of college students as a function of physical distance, psychological distance, and various physical and social boundaries which might affect psychological distance and thus opportunity to interact.

The data chosen for this study was obtained from women college students, mainly because the shape of the dormitory was especially suited for analyzing patterns of interaction as a function of distance. However, a partial analysis of similar data from a large men's residence hall indicated quite similar patterns of interaction.

The title of this report is intended merely to be descriptive, and not to imply an evaluation. Most of this report will be involved in showing the great extent to which a college student (in a large university) is limited in his (her) friendships to the people living within a few rooms of his (her) own room in the dormitory. In a more theoretical sense, and to include a broader perspective, the data provides a convincing demonstration of the extent to which propinquity influences or places a limitation on friendships. Friendship choices are mainly in the student's own dorm, with very few being from further away, with most being made within two rooms distance from the student's own room. In other words, friendship is a function of distance, with the relationship accounted for mainly by relatively short distances.

In terms of evaluation this may be considered both good and bad. On the one hand this finding shows the adaptability of the individual, being able to make friends wherever he (she) finds himself. On the other hand, it shows the extent to which a student in a large university has his friendship (and thus knowledge of other people and potential study companions) limited to a great extent by the mere convenience of propinquity.

The results and their implications will be reported in more detail below, after a description of the method.

Method

Sample. The sample consisted of 124 women college students, comprising the entire population of one floor (third floor) of a women's highrise residence hall at a state university in the Southeast. All students lived with roommates in double rooms, except for one resident during the spring quarter when vacancies reduced the sample to 121 residents. There were approximately 15% change of rooms from fall quarter to spring quarter, including approximately eight percent new residents who moved onto the floor to take the place of residents who had moved out, and approximately seven percent residents who moved to a different room on the same floor. "Subjects" were the 56 women who completed questionnaires fall quarter, and the 66 women who completed questionnaires in spring quarter. However all residents on the floor were involved in the study since the subjects' choices of friends, etc., were considered for anybody and everybody no matter where they lived.

Residence hall. The residence hall (dorm) was divided into four sections, A, B, C, and D with 14, 12, 22, and 14 double rooms in the respective sections. The diagram in figure 1 illustrates the rather typical form of residence hall construction in which rooms are lined up along a long hallway. The four sections were separated from each other by two service areas comprised of a widened hallway with wall telephones, storage room, laundry room, janitor's closet (for maid), large central bathroom, and a small room used as a combination study room and drip dry-ironing room. The distance between sections was approximately the equivalent of three student rooms.

Procedure. Participation was entirely voluntary. Questionnaires were distributed in students' dorm mailboxes and delivered in sealed envelopes to a box in the office of the housemother, who collected them for the investigators. Prior approval was secured from the Residence Hall Staff and Dean of Women's Staff; a member of the student government organization living in the section solicited participation from those students present during a floor meeting. In the fall quarter the sociometric questions used for this study were administered separately from the booklet containing the other forms, but they were all in the same booklet spring quarter. Administration of the booklets both quarters approximately a week before the quarter examination period probably affected the rate of return.

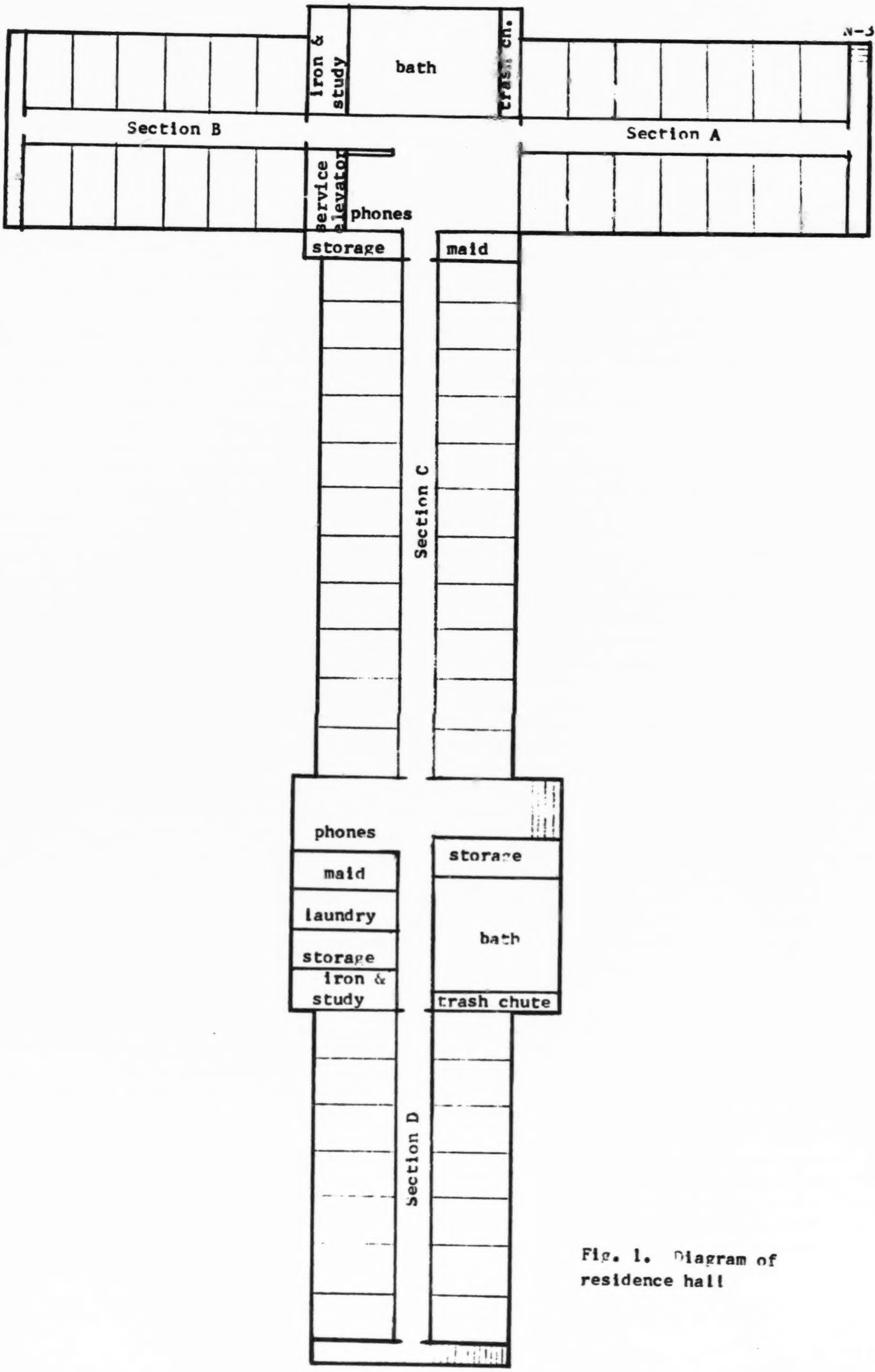
iron & study
bath
trash ch.
Section B
Section A
Service elevator
phones
storage
maid
Section C
phones
storage
maid
laundry
bath
storage
iron & study
trash chute
Section D

Fig. 1. Diagram of residence hall

Rate of return; cross validation of analyses. Total rate of return was 45% for fall quarter, and 55% for spring quarter. A breakdown by section is shown in table 1-n. Because of the limited rate of return most of the analyses were calculated separately for the subjects from each of the four sections. These four replications yielded quite similar patterns for the four sections. The breakdown by section is given in several of the results tables to illustrate this replication or cross validation. Since the replication is sufficiently illustrated in these tables, combined data for the whole floor (rather than a breakdown by section) is reported for some of the analyses in order to conserve space. Approximately 30% of the subjects answering in the spring were from those who had not answered in the fall, i.e., approximately 75% of the residents were represented in the data when we consider spring and fall combined. The patterns of interaction found in the spring were quite similar to those from the fall. Although the findings may not be entirely representative of non-participants, the replication of findings from section to section, and from fall to spring lends credence to the generality of the findings.

Measures:

Sociometric choices. The main instrument was a sociometric questionnaire asking subjects to choose two people from their floor of the residence hall for various sociometric roles. In all there were 10 questions, but data from only four of these were analyzed for this study--choices for the roles of Friend, Confidant, Entertainer, and Leader. The questions for the latter three roles were worded as follows. Confidant--"If you had a personal problem, with whom would you discuss it?" Entertainer--"Who is the most entertaining conversationalist, with interesting stories and jokes, and never seems at a loss for words?" Leader--"Whom would you choose as leader for a group discussion?" Space was provided beneath each of these questions for two names. The question for role of Friend, used as the main data for this report, provided space for three names and was worded as follows. "Whom do you consider your best friends--not necessarily the most capable or the nicest of your friends but the ones you spend the most time with and feel closest to personally." These four questions were embedded with six other sociometric questions on the same form, with the other questions considered as buffer items for this report.

Spend time in informal activities. On a separate form the following question was asked in the spring quarter. "In the space below list the names of the students with whom you regularly spend the most time in informal activities, e.g., eating together, bull sessions or quiet conversations, studying, walking to class together." This form followed the sociometric questionnaire (described above) on which subjects were asked to choose students from their floor of the dorm. In order to break the "set" for own floor of dorm, the instructions paragraph for this question opened with, "Note: Your answers to this question do not have to be limited to your floor of the dorm." The instructions paragraph furthered this orientation by asking that subjects write beside the name of each person chosen, "Where she (he) lives, e.g., which dorm, and estimate the amount of time spent with her (him) on a typical day, estimated to the nearest 1/4 hour." On the form labels indicated space for name, location, and amount of time for persons to be listed. Approximately half a page was provided for choices; but the mean and modal number of choices per subject (average number of people listed) was 5. with no one making more than eight choices. (Subjects were also instructed to indicate the main ways of spending time with each person listed. That information was called for mainly to get subjects thinking in terms of specifics, and was not analyzed for the results to be reported below. However, it was found from a content analysis that the most typical responses were, "talking," "bull sessions," "studying," "eating.")

Choice for people on other floors and in other dorms. In the fall quarter a form following the floor roster contained two questions. "Write down the names of students from *other floors*, with whom you spend *a great deal of time*. Be sure to indicate the floor on which they live." and "Write down the names of other students from *other dorms* (or living in town, sororities, etc.) with whom you spend *a great deal of time*. Be sure to indicate the dorm in which they live." Lines were provided for five choices to each question, with approximately one inch of space beneath to write more names. Several subjects made exactly five choices (so possibly limited their choices to the lines provided) several wrote in more than five, but most subjects made less than five choices per question.

How well known. A form preceding the sociometric questionnaire in the booklet included an alphabetical roster of all the residents living on the floor. Instructions asked each subject to, "Put a *dash* by the names of all students you *know at least slightly*." For fall quarter the instructions then asked subjects to "*Circle* the names of students with whom you *spend most of your time*." For spring quarter this part of the instructions was changed to, "*Circle* the name of each student you have gotten to *know quite well*."

Context of questions. In the spring quarter these questions were preceded in the booklet by a personality inventory and a set of peer ratings. In the fall quarter the personality inventory and peer ratings were in a separate booklet, administered prior to the administration of the booklet of questionnaires used for this study. Data from the personality inventory and peer ratings were not used for purposes of this report (although the peer rating data is referred to in Appendix B).

Results

The main thesis of this study is that friendship choice (and choice for other social roles) is a function of physical distance. Various sections of the results are devoted mainly to showing how this distance factor operates in different areas (e.g., campus, own dorm, own floor, own section of floor, near rooms versus far rooms), how distance is interpreted in terms of opportunity to interact, and how the influence of physical distance is modified by factors contributing to social boundaries and psychological distance.

Note that the data in tables numbered with an n suffix (e.g., 1-n, 2-n, etc.) are at the back of the report and summarized briefly in the text. This avoids breaking the continuity of the presentation with numerous tables, yet allows the reader who is interested in details or technically inclined to see a full presentation of the data. In some cases, also, detailed explanation of the method of analysis is given in notes with the tables rather than in the text.

An overview is provided by the results in Table 1. The question asking subjects to list the students with whom they spend the most time in informal activities was used for this analysis. Although this data was obtained only in the spring quarter, consistency of other findings with fall quarter data suggests that this presents a fairly stable picture of interaction patterns. Although not shown in Table 1, the data was analyzed separately for subjects from sections A, B, C, and D, with a remarkable similarity in interaction patterns; it is the combined data from subjects of all sections that is shown in Table 1.

The data for Table 1 was analyzed separately for people with whom subjects spent one-quarter hour, one-half hour, one hour or more, and any time at all (all students combined). For the 66 subjects there were 26 choices (.39 choices per subject) for people listed with whom they spent one-quarter hour, 30 choices (.46 per subject) for one-half hour, 274 people (4.15 per subject) for one or more hours, and 330 total choices (5.00 per subject). In the top section of Table 1 cumulative choices are given and in the lower section cumulative percentage of choices are given for own section of own floor, all of own floor, all of own dorm, all women students (including those in own dorm and all others), and all students (men students and women students). For any time and for one hour or more 9% of choices (100% minus 91%, from Table 1) were for men students, while 91% were for members of own sex. When we consider only own sex choices (the very bottom of Table 1) we find that 95% of all choices are for people from own dorm, with 77% of these from own floor, and 71% for people from own section of own floor. Considering just those people of same sex with whom subjects spend one hour or more, 75% are from own section. Only when we consider those relatively few people listed with whom subjects spent less than one-half hour do we find less than a majority of choices being made from own section, and even here a majority of choices (53%) are made from own floor.

Table 1
Spend Time in Informal Activity, Spring

	Own Section	Own Floor	Own Dorm	All Women	All Students
Choices: Cumulative Frequency					
1/4 hr.	9	14	20	24	26
1/2 hr.	19	21	28	28	30
1 hr. or more	187	198	238	249	274
Total (Any time)	215	233	286	301	330
No. Residents Possible to Choose	30	91	847		
Choices per Subject					
1 hr. or more	2.83	3.00	3.61	3.77	4.15
Total (Any time)	3.26	3.53	4.33	4.56	5.00
Choices: Cumulative Percent					
1/4 hr.	35%	53%	76%	92%	100%
1/2 hr.	63%	70%	93%	93%	100%
1 hr. or more	68%	72%	87%	91%	100%
Total (Any time)	65%	70%	86%	91%	100%
Choices for Women only: Cumulative Percent					
1 hr. or more	75%	80%	96%	100%	
Total (Any time)	71%	77%	95%	100%	

In summary, one's own dorm accounts for more than 90% of the people with whom subjects spend most of their time in informal activities. Approximately 80% come from one's own floor of the dorm, with only approximately 16%-18% coming from the rest of the dorm. Approximately three-fourths of the choices are confined to one's own section of the dorm (comprising approximately 30 residents), with only 5%-6% coming from other sections of own floor. In short, when students are asked to list anyone from the whole campus with whom they spend time in informal activities, choice for time spent is clearly a function of distance, with more than 90% coming from own dorm, and approximately three-fourths confined to one's own dorm section--a distance of less than 50 feet from one's own room for most subjects.

Friends on other floors. As indicated above, when choosing from the whole campus, only about 15%-18% of the choices were made for people on other floors of own dorm. To study within-dorm choices (not counting own floor) more closely, subjects were asked (in the fall) to indicate specifically people from other floors of the dorm with whom they spent a great deal of time. In all there were an average of 2.11 choices per subject. The research floor was the third floor of the dorm. The first floor is composed of service areas, while floors 2, 4, 5, 6, 7, 8, 9 are composed of residents' rooms like the third floor. The percent of choices for each floor (out of total choices for other floors) is shown in Table 2-n. Then the average choice per floor was compared for floors within two floors of own floor (floors 2, 4, 5) versus three or more floors away (floors 6, 7, 8, 9). Sixty four percent of the choices per floor were for floors within two floors of own floor, with 36% choices per floor for floors further away. Since this difference was not as great as for other comparisons of other near versus far areas, a chi square test was used to test the statistical significant of the different frequencies of choice. The chi square comparing the observed frequency with expected frequency (expected if each floor of these two areas were equally likely to be chosen by chance) was 10.55, significant beyond the .01 level. Due to the clustering effect (to be described below) a similar comparison was done considering each subject's choice for a given floor only once. There were 66% choices for floors within two floors of own floor compared with 34% for floors further away, with a chi square of 8.36 significant beyond the .01 level.

Clustering of friends on other floors. From inspection of the choices for other floors, there appeared to be a tendency for subjects to cluster their choices on the same floor, i.e., if they chose one person from a given floor this increased the probability of their choosing someone else from the same vicinity of the same floor. A systematic analysis was done comparing choices for same floor with choices for different floors. A summary of these choices is given in Table 3-n. For all subjects combined 62% of the choices (considered for each subject separately) were for people on the same floor, while 38% were choices for people on different floors. This was including subjects who made two, three, four, or five choices for people on other floors. A second comparison was made from those nine subjects who chose exactly two people on other floors. Five of these nine (56%) made both choices from the same floor, while four (44%) chose people from different floors. Although the exact probability of choosing two or more people from the same floor by chance (compared to choosing people from different floors) was not figured, with seven floors from which to choose the chance probability of clustering choices would be much less than the 62% and 56% figures cited above. Upon questioning students about this, they indicated that if they had a friend on another floor they were quite likely to spend time (and become friends) with the roommate and other friends of their friend. Considering this from the standpoint of sheer opportunity to interact, if they spend time in a given location (in this case due to visiting a friend) this increases the likelihood of their becoming friends of other people in that location.

Own section versus other sections of own floor. From the data of Table 1, concerning time in informal activities in the spring with anyone (of the same sex) on campus, we found 77% (80% if we consider those with whom subjects spent one hour or more) of the choices for residents on subjects' own floor. Most of these (more than 70% of all choices) were for residents of subjects' own section. From that information we may conclude that residents outside of one's own section but on one's own floor are somewhat more likely to be chosen than people on other floors (considering number of people possible to choose in the respective areas), but not a lot more likely. In other words, it appears that the section boundary provides a social-ecological boundary, with the psychological distance across the section boundary being much greater than the physical distance. The main thing that separates sections is service rooms entering on the hallway, which comprise approximately the distance of three student rooms. The bathroom is in this area and is used by people from sections on both sides of the boundary. Although there is a door to separate sections it was typically left open until late at night. In short, access across the section boundary was easy, and actually required by use of a common bathroom. Yet the section boundary provided a considerable limitation to time spent with others, almost as effective a limitation as being on a different floor of the dorm.

Choice for own section versus other sections of the same floor was investigated more closely with sociometric choices. As shown in Table 4-n, more than 80% of the choices for Friend, Confidant, and Entertainer and 76% for leader were made within subjects' own section, when using fall data, although only 25% of the residents on the floor lived in own section. (This is when combining data for subjects from all four sections. As may be seen in Tables 8-n, 9-n, 10-n, and 11-n (which provide a breakdown of the data in Table 4-n), there was a remarkable replication of this pattern of interaction for subjects from each of the four sections.) Within-section choices were examined further for the Friendship role. In the spring 93% of the choices (compared with 81% of the choices in the fall) were for people in subjects' own section. From this it appears that, contrary to what one might expect, friendships move closer in rather than further out (on the floor) as a function of time.

Since some of the upperclass students were acquainted prior to the academic year in which this study was done (and several, but not many, had actually lived in the same section the year before), these analyses were done separately for freshmen subjects, most of whom were unacquainted prior to the academic year in which the study was conducted. For freshmen there were 81% within-section choices in the fall and 88% in the spring, this pattern of interaction paralleling closely the pattern found for all subjects combined.

In summary, more than 75% of choices for each of four social roles are made within subjects' own section, while only 25% of the residents on the floor comprise the section. For the friendship role in the fall 81% of the choices were for own section compared to 19% for the other three sections combined, while the breakdown in the spring was 93% versus 7%. In short, the section boundary has a pervasive influence on which people will become one's friends, with the section serving as a relatively autonomous "home" area, in spite of rather sparse furnishings (no living room nor real study room, common bathroom and common hall telephones) and only a token physical boundary between sections.

Choice for other sections as a function of distance. Since there were relatively few choices for people in other sections for any one role, the data were combined for choices of Friend, Confidant, Entertainer, and Leader. Choices for people in other sections (all other sections combined) were calculated as a function of area within own section--subjects living in rooms nearest to other sections, rooms in middle of own section, and rooms furtherest away from other sections (data combined for subjects from sections A, B, D). As shown in Table 5-n, subjects in rooms nearest other sections made an average of 2.2 out-of-section choices per subject (45% of the out-of-section choices), subjects in middle rooms made 1.8 out-of-section choices per subject (18%), while subjects in rooms furtherest away from other sections made .9 out-of-section choices per subject (18% of the out-of-section choices). In brief, subjects living at the dead end of the hallway are quite unlikely to interact with people from other sections, i.e., their friendships are very much limited to their own section , while those living in more centrally located rooms (adjacent to other sections) are much more likely to interact with people from outside of their own section. But, as indicated in the section above, the absolute level of interaction across section boundaries is small. So the differences referred to in this section are only relative, with a sufficient number of out-of-section choices to analyze only when choices are combined for four roles.

Another analysis was done combining all subjects within a given section. Out-of-section choices were compared for near section(s) versus far section(s). For section A near sections were B and C, while section D was far section; and similar designation for sections B and D as indicated in Table 6-n. Since there were "different numbers of residents possible to choose in near section(s) and far section(s), the number of choices for each area were divided by number of residents in that area and reported in Table 6-n in terms of choices per recipient for each area (near versus far). With data combined from sections A, B, and D 71% of the choices per recipient were for near section(s), with 29% for far section(s). Here, too, we are dealing with a small portion of all choices (since most choices were for own section rather than out-of-section choices), but for these choices number of friends is a function of distance.

Choice within section as a function of distance. As indicated above most of students' choices for friends (and for other social roles) come from their own section. Table 2 shows frequency and percentage of within-section choices for others within a distance of one room from own room, within a distance of two rooms, and for all others (distance of more than two rooms away from own room). For the roles of Friend and Confidant in the fall approximately 80% (78% and 80%, respectively) of the choices were for people within a distance of one room, with more than 90% limited to a distance of two rooms away, a mere 25 feet (in both directions) from one's own room.[1] Approximately 60% of the choices for Entertainer and Leader were within one room, and approximately 75% within a distance of two rooms. The center section of Table 1 shows data confined to the friendship role, fall and spring. In the spring (for all subjects combined) there are somewhat less choices (than in the fall) for distances of one and two rooms away--64% spring compared to 78% fall for distance of one room, and 84% spring compared with 92% fall for people within a distance of two rooms of own room. Results are quite similar when analyzed separately for freshmen subjects, as indicated in Table 1. Although the percentage of within-section choices for people more than two rooms away increases somewhat from fall to spring, as we saw above the percentage of out-of-section choices decreased from fall to spring.

Combined with the information reported above, we have the following picture. More than 90% of the time spent with others in informal activities is spent with members of one's own sex (averaged over all subjects, with interaction pattern varying somewhat for different individuals, of course). Of choices for own sex, more than 90% are for people living within one's own dorm. Approximately 75% of these choices are for people from one's own section of the dorm (out of 32 sections of comparable size from which to choose). The greatest part of these are for people within a distance of one or two rooms from one's own room. Estimating from Tables 1 and 2 jointly, roughly two-thirds of all people on the campus with whom subjects spend much time in informal activities (their friends) live within two rooms of their own room in the dorm.[2]

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[1] Recipients possible at each distance, shown at the bottom of Table 2, was calculated separately for each subject by the procedure described in Attachment 1-n, then combined over all subjects.

[2] Estimated by taking choices for all people of same sex from own section (71% in spring, from Table 1) and multiplying this by choices within two rooms of own room (compromise of 84% in the spring and 92% in the fall) for friendship role, from Table 2.

Table 2

Choice Within Section as a Function of Distance Within Section

	Number of Choices				Percent of Choice			
Fall Four Roles All Subjects	Within Distance of One Room	Within Distance of Two Rooms	All Others	Total	Within Distance of One Room	Within Distance of Two Rooms	All Others	Total
Friend	94	111	9	120	78%	92%	8%	100%
Confidant	70	80	8	88	80%	91%	9%	100%
Entertainer	54	69	21	90	60%	77%	23%	100%
Leader	51	63	21	84	61%	75%	25%	100%
Friend Fall & Spring								
All Subjects:								
Fall	94	111	9	120	78%	92%	8%	100%
Spring	114	149	28	177	64%	84%	16%	100%
Freshmen:								
Fall	50	55	2	57	88%	96%	4%	100%
Spring	40	61	7	68	59%	90%	10%	100%
Recipients Possible								
All Subjects:								
Fall	525	827	778	1605	33%	52%	48%	100%
Spring	632	1013	928	1941	33%	52%	48%	100%
Freshmen:								
Fall	247	393	354	747	33%	53%	47%	100%
Spring	259	427	376	803	32%	53%	47%	100%

Choices relative to possible choices at each distance. A further analysis of within-section choices as a function of distance from own room was done, comparing choice for roommate, residents directly across the hall, residents one room to either side of own room, two rooms away, etc. The number of choices by each subject was determined for each distance, as were the number of possible choices for each distance (the number of subjects living at each distance). Choices and possible choices for each distance were summed for each section, then a ratio of choices to possible choices calculated for each distance. The procedure is illustrated in more detail in Attachment 1-n and the data are summarized in Tables 7-n, 8-n, 9-n, 10-n, and 11-n--for each section separately and combined over all sections. As shown in these tables the interaction patterns were quite similar from section to section. Percent of choices relative to possible choices for each distance are plotted in Figure 2, for each of four roles.

As shown in Figure 2 (and Table 8-n) choice for Friend is clearly a function of distance (a negatively accelerating function), with 71% of roommates chosen, 23% for residents directly across the hall, 8% for residents one room away, 6% for residents two rooms away, 2% for residents three rooms away, etc. (when choices are in terms of obtained choice relative to possible choice at each distance). Likelihood of choosing roommate (44%) and residents directly across the hall (14%) are quite high for the Confidant role, but somewhat less likely than for role of Friend. Choices for role of Entertainer are most likely to be made for roommate and person directly across the hall, but are more likely (than for Friend and Confidant) to be spread out at greater distances. Choices for Leader are only slightly a function of distance, with choice for residents one room away being about as likely as choice for roommate or resident directly across the hall.

In short, within-section choices for others are clearly a function of distance, but the relationship of choice to distance decreases as the social roles change in degree of psychological closeness--from Friend, to Confidant, to Entertainer, to Leader. Further, for all roles but Leader, psychological distance (perceived distance, ease of access) plays a large part in determining persons chosen for these different roles. For example, residents directly across the hall are not physically closer than those on either side of one's room (considered one room away psychologically) yet account for a much higher percent of choices (relative to possible choices). And roommate is chosen for Friend and Confidant role (but not especially for other roles) way out of proportion to the next step in physical distance.

As indicated above, in connection with the data of Tables 2 and 4-n, there is little differentiation between choices for these four roles when we compare within-section choices with out-of-section choices, or even when we compare choices within a distance of two rooms with rooms further away. But as shown in Figure 2, choices at the closer psychological distances correspond to the degree of closeness of the psychological role, with subjects quite likely to choose their roommate or persons with next easiest access (directly across the hall) for Friend and Confidant.

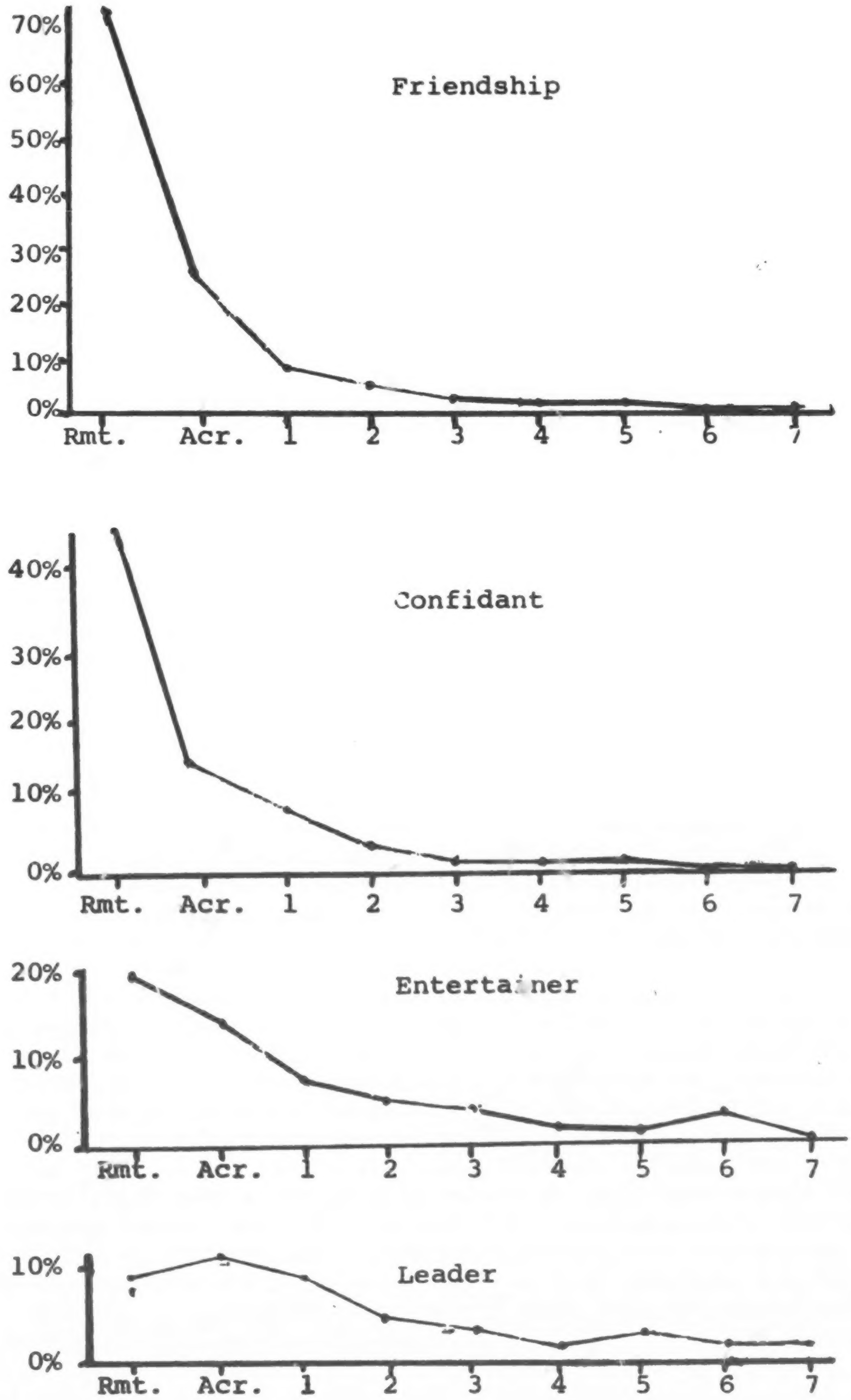


Fig. 2. Within section choices for four roles as a function of distance within section.

Others known in own section and other sections. Data for this topic was obtained from the roster on which subjects marked the people from their own floor whom they knew even slightly, in the fall quarter and spring quarter. In addition, in the spring quarter they circled the names of those they knew quite well, and in the fall quarter they circled the names of those with whom they spent quite a bit of time. The data comparing people known in own section and other sections is summarized in Table 12-n in terms of average number of people known per subject. Considering number known at all (combining those indicated as known "quite well" and known "at least slightly"), the average subject at the end of fall quarter knew 25.96 residents in her own section and 18.84 residents in other sections (all other sections combined). Since the number known from own section approximated the asymptote in the fall, there was little room for increase in the spring. However the number of people known in other sections in the spring increased to an average of 32.91 residents per subject. In the spring the average subject knew 14.52 residents of her own section quite well and 6.54 residents of other sections quite well.

In Table 13-n these figures are expressed in terms of percent of residents known for each area relative to number possible to know (number living there). This analysis, also, supports the central thesis--number of people known is a function of distance. For example, in the spring 97% of residents in own section are known at least slightly, 44% of residents in near section(s), and 23% of people in far section(s). Known quite well are 56% of own section, 12% of near section(s), and 7% of far section(s).

Relationship of knowing others to friendship choice. Knowing others as a function of distance from one's own room parallels the findings of friendship choice as a function of distance. In a sense choosing others for friend and other social roles is probably accounted for, in part, by knowing others, i.e., a person can't be chosen if he (she) is not known by the chooser, and the probability of choosing a friend from a given area increases with the number of people known in that area. However, choice for friend is far more a function of distance than is knowing of others. This is compared in Table 3 for spring data, in terms of within-section choices versus out-of-section choices. In terms of absolute number, the average subject actually knows more people outside of section (average of 32.91 per subject) than within own section (25.12), a distribution of 43% of those known (at least slightly) within own section versus 57% in other sections. Of those known quite well, 9.45 per subject or 42% of all of those known quite well are in other sections, compared with 14.52 or 58% within own section. In terms of absolute number of those people on the floor with whom subjects spend quite a bit of time in informal activity, 92% are from own section versus 8% from other sections; 93% of friendship choices are made for people within one's own section compared with 7% in other sections.

Table 3

Percent Chosen and Known, Spring -- Own Section Versus Other Sections

	No. Chosen or Known by All Subjects		Av. No. Chosen or Known per Subject		Percent Chosen or Known	
	Own	Other	Own	Other	Own	Other
Choices:						
Spend time in informal activity	215	18	3.26	.27	92%	8%
Choose for friend	177	10	2.68	.15	93%	7%
No. subjects (sections A,B,C,D) =66						
Know:						
Know well	480	312	14.52	9.45	58%	42%
Know at all	830	1076	25.12	32.91	43%	57%
No. subjects (sections A,D) = 33						
No. Residents Possible to Know: Own = 26 Other = 94						
No. known relative to no. possible to know						
Know well					56%	11%
Know at all					97%	35%

Note.-- No. Chosen relative to no. possible to choose was not calculated because (when based on choices per subject, which would be appropriate) the percentage would be so small -- well under one percent for other sections.

4

Probably the most important information is this. Number of others known is a function of distance. By making opportunities and limiting opportunities for friendship, number of others known influences friendship choice. However, on the average, subjects know quite a few people in other sections of their dorm, as well as in their own section. In spite of knowing as many people in other sections as own section, friendship choice is quite limited by the section boundary. This may be interpreted in terms of propinquity or ease of access, as determined by mere physical distance, and to an even greater extent by social-ecological boundaries and psychological distance.

Summary. In synthesizing the various findings reported above, we find the following picture. Students get to know most of the people in their own section during the fall. By the spring they have gotten to know quite a few people in other sections of their floor. Yet most of their close ties are still with people of their own section, mainly within a distance of two rooms of their own room, with roommate and people in the room directly across the hall chosen more than those in rooms on either side. Thus propinquity, mainly physical distance but also psychological distance, has a pervasive influence on friendship and the people with whom the student spends most time. When we move out beyond the section boundary we find that friendship is still a function of distance--people in near sections being chosen more than far sections, people in other sections of own floor being chosen more than those on other floors (when number of people possible to choose in the various areas is taken into account), and people on near floors being chosen more than those on more distant floors.

However, once beyond the section boundary distance probably plays only a minor role, mainly in terms of opportunity to become acquainted, while other factors (such as similar interests, etc.) probably play a larger role in determining friendship choice. It is not meant that these other factors are inoperative in within-section choices--actually they probably do influence which person one chooses for his (her) closest friends within the section and within a distance of two rooms. However, the remarkable thing is the extent to which friendship choice (and choice for other social roles as well) is determined by a relatively small physical and psychological distance and by social-ecological factors, all of which may be subsumed under the concept of propinquity or opportunity (and limitation) to interact.

Generalizability of conclusions. Although the data of this study were obtained exclusively from women students who were willing to voluntarily complete long and tedious questionnaires, their choices for all residents on the floor were included in the data. Of course these findings should be replicated at other times and places, as for any research. And it is quite likely that the interaction patterns will vary somewhat for other settings, e.g., for dorms with different arrangements, for smaller colleges where everybody knows everybody, etc. But confidence in the general conclusions from this study is increased by

(a) close replication of findings when cross validated by separate analyses for the four sections of the dorm, and (b) a partial analysis of data from a men's residence hall with approximately the same conclusions as from this study.

Implications

On the one hand, limitation of close friends to relatively short distances from one's own room (for the average of subjects) suggests that college students tend to be quite adaptable, making friends with the people with whom they come into closest contact, even though they get to know quite a few others (at least in their own dorm). On the other hand, students are quite limited in their social interaction to relatively short distances from their own room. This has three implications. (1) Considering that more optimum social relationships might be achieved by considering more alternatives, some mechanism is needed for increasing the range of opportunities (for close social interaction with others further away from one's own room). This may be achieved in part by providing information of this nature to the students themselves. Further, useful opportunities could be provided by relevant university staff working cooperatively with organized student groups. Increasing opportunities for interaction is academically relevant in terms of helping students find optimum study companions. (2) Most close friends (and people chosen for confidant as well) come from within two rooms of one's own room, with a moderate number from further away in one's own section. The section boundary, although physically nominal, provides a rather effective psychological boundary for social interaction. This suggests that the section, as a unit, might be strengthened to provide more of a home atmosphere (home away from home), and might serve as an organizational nucleus for increasing opportunity for meaningful social interaction, especially in regards to study companions. (3) In spite of knowing many other residents in other sections of their floor, the extent to which most of the social interaction is limited to one's own section is impressive. It appears that students, usually, don't have the inclination to wander much further away for their social contacts. From interviews with students, content analyses of answers to open end questions, and data from other parts of this research project, the same appears to hold for studying. Most students prefer to study in their own room. When they have difficulty studying there they are reluctant to go to a distant study lounge or library. Successful merchants have recognized a similar situation in regards to shoppers--just consider the price of real estate in a "favorable location," where shoppers already tend to congregate, compared to other real estate only a few blocks away. By analogy, the "favorable location" for students is in their own section. This suggests the need of having a study lounge (soundproof, attractive, and with appropriate furnishings) in each section of the dorm.

Table 1-n

Subjects Completing Questionnaire

Section	Number Answered	Number of Residents	Rate of Return
Fall:			
A	13	28	46%
B	16	24	67%
C	14	44	32%
D	13	28	46%
Total	56	124	45%
Spring:			
A	19	28	68%
B	10	24	42%
C	21	43	49%
D	16	26	62%
Total	66	121	55%

Table 2-n

Choices for Friends on Other Floors of the Dorm as a Function of Distance from Own Floor

	No. Subjects	Within Two Floors of Own Floor			Further than Two Floors Away				
		2	4	5	6	7	8	9	Total
Counting All Choices									
Choices for Each Floor									
Section A	13	8	2	2	3	4	1	3	
Section B	16	4	9	15	3	2	3	4	
Section C	14	8	1	6	2	5	8	4	
Section D	13	6	4	3	0	2	6	1	
Total	56	26	16	26	7	13	18	12	118
Choices per Subject		.46	.29	.46	.13	.23	.32	.21	2.11
Percent of Choices		22%	14%	22%	6%	11%	15%	10%	100%
Average Choices per Floor for each area: Choices		68 ÷ 3 = 22.67			50 ÷ 4 = 12.50				35.17
Percent		64%			36%				100%
Counting a Subject's Choice for Each Floor Only Once									
Total Choices for Each Floor		14	10	19	5	6	10	8	72
Choices per Subject		.25	.18	.34	.09	.11	.18	.14	1.39
Percent of Choices		19%	14%	26%	7%	8%	14%	11%	100%
Average Choices per Floor for each area: Choices		43 ÷ 3 = 14.33			29 ÷ 4 = 7.25				21.58
Percent		66%			34%				100%

Table 3-n

Clustering--Choices of Subjects Who Chose Two or More People on Other Floors

No. chosen on same floor	Number of Choices for Other Floors				Total
	2	3	4	5	
None same floor	4			0	4
2 same floor	5 (2 of 2)	4 (2 of 3)	6 (2 of 4)	4 (2 of 5)	19
3 same floor		2 (3 of 3)	2 (3 of 4)	2 (3 of 5)	6
4 same floor			1 (4 of 4)	1 (4 of 5)	2
5 same floor				1 (5 of 5)	1
					32
No. of Subjects	9	6	9	8	32
Total No. Choices	18	18	36	40	112
No. Choices not on same floor	8	4	14	17	43
No. Choices on same floor	10	14	22	23	69

Note.--The figures in this table can be explained by an illustration. Consider the six subjects who each chose three people from other floors. Four of them chose two people from the same floor (2 of 3) and one person from a different floor (1 of 3). Two subjects made all three choices from the same floor (3 of 3). There were six subjects each making three choices, for a total of 18 choices--14 of those choices were clustered, 4 x 2 (of 3) plus 2 x 3 (of 3), and four choices were not clustered, one choice on a different floor by each of four subjects (the four who chose two on the same floor).

Table 4-n

Choices for Own Section Versus Other Sections of the Same Floor

	Number of Choices			Percent of Total		
Fall Choices for Four Roles All Subjects	Own Sect.	Other Sect.	Total	Own Sect.	Other Sect.	Total
Friend	120	29	149	81%	19%	100%
Confidant	88	16	104	85%	15%	100%
Entertainer	90	12	102	88%	12%	100%
Leader	84	26	110	76%	24%	100%
Choices for Friend						
All Subjects:						
Fall	120	29	149	81%	19%	100%
Spring	177	10	190	93%	7%	100%
Freshmen:						
Fall	57	13	70	81%	19%	100%
Spring	68	9	77	88%	12%	100%
No. of Residents (Average of Four Sections)						
Fall	31	93	124	25%	75%	100%
Spring	30	91	121	25%	75%	100%

Table 5-n

Choice for People in Other Sections as a Function of Location Within Own Section (in relation to distance from other sections)

Location of subjects within own section (combined over sections A, B, and D)	No. of Subjects Each Area	No. of Choices Other Sections	No. of Choices per Subject	Percent Choices per Subject
End nearest to other sections	13	28	2.2	45%
Middle of own section	11	20	1.8	37%
End furtherest away from other sections	15	13	.9	18%
Total			4.9	100%

Table 6-n

Choices for Other Section(s) -- Near Sections Versus Far Sections

Section of Chooser	Section(s) Classified as Near	Section(s) Classified as Far	No. of Possible Recipients in Other Section(s)		Choices for Other Section(s)		
			Near	Far	Near	Far	Total
A	B & C	D	68	28	24	5	29
B	A & C	D	72	28	18	0	18
D	C	A & B	44	56	11	8	19
Total			184	112	53	13	66
Choice per recipient for total (Choices/ Choices Possible)					.29	.12	.41
Choice per recipient in percent					71%	29%	100%

Attachment 1

Illustration of Method for Calculating Choice Within Section as a Function of Distance

Since there are different number of people possible to choose at various distances, choice at each distance must be reduced to a common denominator for a fair comparison of choices different distances away from one's own room (with choice as a function of distance summarized over all subjects combined). This may be explained more easily by an illustration.

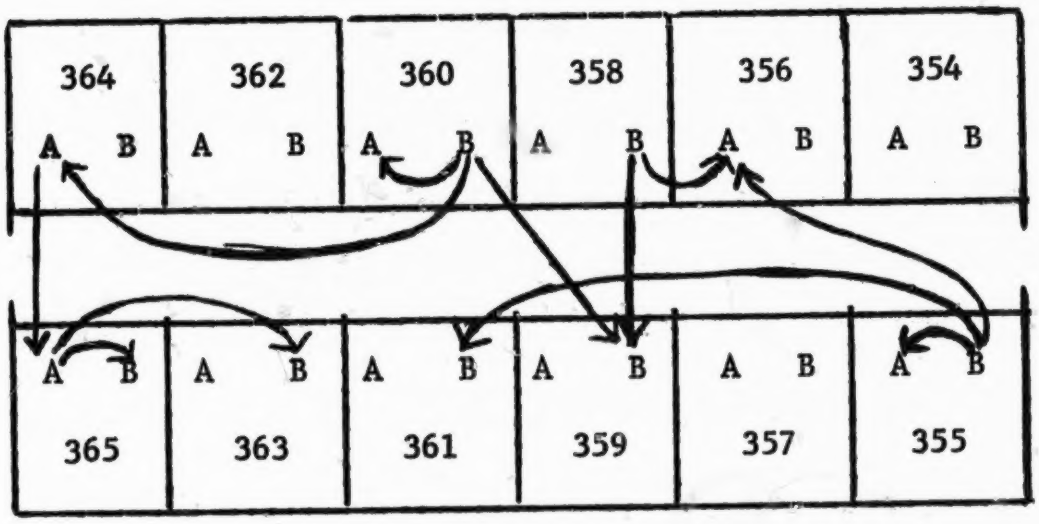
Consider that we have the dorm section diagrammed below, with 12 double rooms, and one vacancy in room 357. The choices of four subjects are described below, verbally and by arrows on the diagram.

Subject A, room 365 chooses: B in 365, A in 364, b in 363.

Subject B, room 360 chooses: A in 360, A in 364, B in 359.

Subject A, room 358 chooses: B in 359, A in 356.

Subject B, room 355 chooses: A in 355, B in 361, A in 356.



It is possible for subject 365-A to choose four people at a distance of one room away (the residents of rooms 362, 363), two people in the room across the hall, and one roommate. But it is possible for Subject 358-B to choose seven people at a distance of one room (the residents of rooms 356, 357, 360, 361). For both of them the odds are much greater of choosing a resident one room away than a resident directly across the hall, if choices are determined by chance alone. The objective is to consider the number of choices at each distance relative to the number possible, considering each choice as independent and that by chance a choice may be made at any distance within the section.

The table below shows the number of people possible for each subject to choose at each distance, determined from the preceding diagram, as described partially for subject 365-A in the preceding paragraph. It is the sum of these possible choices (over all subjects) at each distance that will be used for the later calculations.

	Possible people to choose at each distance						
Subject	Roommate	Across	1	2	3	4	5
A in room 365	1	2	4	4	4	3	4
B in room 360	1	2	8	7	4	0	0
B in room 358	1	2	7	8	4	0	0
B in room 355	1	2	3	4	4	4	4
Sum	4	8	22	23	16	7	8

Subject 365-A actually chooses his roommate and one resident one room away (363-B). The actual choices for him and the other three subjects are shown in the table below, i.e., the choices at each distance for each subject, and the sum of choices at each distance.

	Choices at each distance						
Subject	Roommate	Across	1	2	3	4	5
A in room 365	1	1	1				
B in room 360	1		1	1			
B in room 358		1	1				
B in room 355	1		1		1		
Sum	3	2	4	1	1	0	0

The first two lines of the table below show the total number of choices at each distance and the total number possible at each distance (taken from the two tables above). The percent of choice at each distance is determined, for each distance, by dividing the number of choices by the number possible.

	Roommate	Across	1	2	3	4	5
No. of choices at each distance	3	2	4	1	1	0	0
Possible no. of people to choose at each distance	4	8	22	23	16	7	8
Percent choices at each distance relative to number of people possible to choose at that distance	75%	25%	18%	4%	6%	0%	0%

Table 7-n

Friendship Choices, Spring

	Choices as a Function of Distance within Section									Choice as a Function of Section					
	Roommate	Across Hall	1	2	3	4	5	6	7	A	B	C	D	Total Other Sect's.	Total Own Sect.
Section A:															
No. Choices	18	7	8	5	7	4	0	0		-	0	3	3	6	49
No. Possible	18	36	123	102	81	66	48	20	0						
Percent	100%	19%	7%	5%	9%	6%	0%	0%							
Section B:															
No. Choices	8	5	5	9	1	0	0			0	-	1	0	1	28
No. Possible	10	20	57	45	36	32	20	0	0						
Percent	80%	25%	9%	20%	3%	0%	0%								
Section C:															
No. Choices	19	4	10	21	3	0	3	0	0	1	0	-	2	3	60
No. Possible	21	40	156	136	120	96	81	84	68						
Percent	90%	10%	6%	15%	3%	0%	4%	0%	0%						
Section D:															
No. Choices	13	8	9	0	8	1	0	1		1	0	2	-	3	40
No. Possible	16	30	105	98	72	55	29	20	0						
Percent	81%	27%	9%	0%	11%	2%	0%	5%							
Total:															
No. Choices	58	24	32	35	19	5	3	1	0	2	0	6	5	13	177
No. Possible	65	126	441	381	309	249	178	124	68						
Percent	89%	19%	7%	9%	6%	2%	2%	1%	0%						
No. Residents Each Section										28	24	43	26	121	
Freshmen:															
No. Choices	22	8	10	21	7	0	0	0	0	2	0	4	3	9	68
No. Possible	25	52	182	168	131	100	69	48	28						
Percent	88%	15%	5%	13%	5%	0%	0%	0%	0%						

Table 8-n

Friendship Choices, Fall

	Choices as a Function of Distance within Section									Choice as a Function of Section					
	Room-mate	Across hall	1	2	3	4	5	6	7	A	B	C	D	Total Other Sect's.	Total Own Sect.
Section A:															
No. Choices	7	7	7	0	3	0	0	0		-	2	4	3	9	24
No. Possible	13	24	90	70	56	52	42	24	0						
Percent	54%	29%	8%	0%	5%	0%	0%	0%							
Section B:															
No. Choices	14	13	5	4	0	0	0			2	-	5	0	7	36
No. Possible	16	32	96	76	64	52	32	0	0						
Percent	88%	41%	5%	5%	0%	0%	0%								
Section C:															
No. Choices	11	2	8	10	1	1	1	0	0	3	3	-	2	8	34
No. Possible	14	28	100	88	88	72	56	56	40						
Percent	79%	7%	8%	11%	1%	1%	2%	0%	0%						
Section D:															
No. Choices	7	3	10	3	2	1	0	0		1	0	4	-	5	26
No. Possible	12	24	76	68	64	32	28	20	0						
Percent	58%	13%	13%	4%	3%	3%	0%	0%							
Total:															
No. Choices	39	25	30	17	6	2	1	0	0	6	5	13	5	29	120
No. Possible	55	108	362	302	272	208	158	100	40						
Percent	71%	23%	8%	6%	2%	1%	1%	0%	0%						
No. Residents Each Section										28	24	44	28	124	
Freshmen:															
No. Choices	19	13	18	5	2	0	0	0	0	4	0	9	0	13	57
No. Possible	25	50	172	146	130	84	68	42	30						
Percent	76%	26%	10%	3%	2%	0%	0%	0%	0%						

Table 9-n

Confidant Choices, Fall

	Choices as a Function of Distance within Section									Choice as a Function of Section					
	Roommate	Across hall	1	2	3	4	5	6	7	A	B	C	D	Total Other Sect's.	Total Own Sect.
Section A:															
No. Choices	6	4	5	0	2	1	0	0		-	3	3	1	7	18
No. Possible	13	24	90	70	56	52	42	24	0						
Percent	46%	17%	6%		4%	2%	0%	0%							
Section B:															
No. Choices	2	7	14	2	2	0	1			2	-	2	0	4	28
No. Possible	16	32	96	76	64	52	32	0	0						
Percent	13%	22%	15%	3%	3%	0%	3%								
Section C:															
No. Choices	9	1	6	6	0	1	1	0	0	1	1	-	1	3	24
No. Possible	14	28	100	88	88	72	56	56	40						
Percent	64%	4%	6%	7%	0%	1%	2%	0%	0%						
Section D:															
No. Choices	7	3	6	2	0	0	0	0		0	1	1	-	2	18
No. Possible	12	24	76	68	64	32	28	20	0						
Percent	58%	13%	8%	3%	0%	0%	0%	0%							
Total:															
No. Choices	24	15	31	10	4	2	2	0	0	3	5	6	2	16	88
No. Possible	55	108	362	302	272	208	158	100	40						
Percent	44%	14%	9%	3%	1%	1%	1%	0%	0%						
No. Residents Each Section										28	24	44	28	124	

Table 10-n

Entertainer Choices, Fall

	Choices as a Function of Distance within Section									Choice as a Function of Section					
	Room-mate	Across hall	1	2	3	4	5	6	7	A	B	C	D	Total Other Sect's.	Total Own Sect.
Section A:															
No. Choices	4	2	4	5	5	0	0	0		-	3	2	0	5	20
No. Possible	13	24	90	70	56	52	42	24	0						
Percent	31%	8%	4%	7%	9%	0%	0%	0%							
Section B:															
No. Choices	4	6	11	3	0	2	1			2	-	0	0	2	27
No. Possible	16	32	96	76	64	52	32	0	0						
Percent	25%	19%	11%	4%	0%	4%	3%								
Section C:															
No. Choices	2	1	10	6	3	1	0	1	0	1	1	-	1	3	24
No. Possible	14	28	100	88	88	72	56	56	40						
Percent	14%	4%	10%	7%	3%	1%	0%	2%	0%						
Section D:															
No. Choices	1	5	4	1	3	2	1	2		0	0	2	-	2	19
No. Possible	12	24	76	68	64	32	28	20	0						
Percent	8%	21%	5%	1%	5%	6%	4%	10%							
Total:															
No. Choices	11	14	29	15	11	5	2	3	0	3	4	4	1	12	90
No. Possible	55	108	362	302	272	208	158	100	40						
Percent	20%	13%	8%	5%	4%	2%	1%	3%	0%						
No. Residents Each Section										28	24	44	28	124	

Table 11-n

Leadership Choices, Fall

	Choices as a Function of Distance within Section									Choice as a Function of Section					
	Room-mate	Across hall	1	2	3	4	5	6	7	A	B	C	D	Total Other Sect's.	Total Own Sect.
Section A:															
No. Choices	3	2	6	1	3	2	3	1		-	2	3	0	5	21
No. Possible	13	24	90	70	56	52	42	24	0						
Percent	23%	8%	7%	1%	5%	4%	7%	4%							
Section B:															
No. Choices	2	7	14	1	3	0	1			1	-	3	0	4	28
No. Possible	16	32	96	76	64	52	32	0	0						
Percent	13%	22%	15%	1%	5%	0%	3%								
Section C:															
No. Choices	0	1	5	6	2	1	0	1	1	4	5	-	2	11	17
No. Possible	14	28	100	88	88	72	56	56	40						
Percent		4%	5%	7%	2%	1%	0%	2%	2%						
Section D:															
No. Choices	0	2	9	4	1	1	1	0		0	2	4	-	6	18
No. Possible	12	24	76	68	64	32	28	20	0						
Percent	0%	8%	12%	6%	2%	3%	4%	0%							
Total:															
No. Choices	5	12	34	12	9	4	5	2	1	5	9	10	2	26	84
No. Possible	55	108	362	302	272	208	158	100	40						
Percent	9%	11%	9%	4%	3%	2%	3%	2%	2%						
No. Residents Each Section										28	24	44	28	124	

Table 12-n

Number of Residents Known -- Own Section Versus Other Sections

	Own Section	Other Section	Total
Know at all, fall			
Av. known per subject	25.96	18.84	44.80
Distribution each area	58%	42%	100%
Know at all, spring			
Av. known per subject	25.12	32.91	58.03
Distribution each area	43%	57%	100%
Know quite well, spring			
Av. known per subject	14.52	9.45	23.97
Distribution each area	69%	40%	100%
Spend quite a bit of time with, fall			
Av. indicated per subject	5.16	1.04	6.20
Distribution each area	83%	17%	100%

Note.-- Data combined for sections A and D, and expressed in terms of mean number of residents known per subject. (Mean number of residents known per subject obtained by taking total number indicated and dividing by number of subjects, n=33 spring, n=25 fall.) Distribution own section and other section (in percent) calculated by dividing average number known in each area (own, other) by average number known per subject for the whole floor (total of own and other).

Table 13-n

Number of Residents Known Relative to Number Possible to Know for Own Section, Near Section(s), and Far Section(s)

	Own Section	Near Section	Far Section	Near & Far Combined
No. Residents (possible to know)				
Fall	28	56	40	97
Spring	26	55	39	94
Know at all, fall				
Av. known per subject	25.96	15.24	3.60	18.84
Percent residents known	93%	25%	9%	20%
Know at all, spring				
Av. known per subject	25.12	23.94	8.97	32.91
Percent residents known	97%	44%	23%	35%
Know quite well, spring				
Av. known per subject	14.52	6.54	2.91	9.45
Percent residents known	56%	12%	7%	11%
Spend quite a bit of time with, fall				
Av. indicated per subject	5.16	.72	.32	1.04
Percent residents indicated	18%	1%	1%	1%

Note.-- Data combined for sections A and D, and expressed in terms of mean number of residents known per subject. (Mean number of residents known per subject obtained by taking total number indicated and dividing by number of subjects, n=33 spring, n=25 fall.) Percent of residents known at each distance is calculated by dividing number indicated per subject by the number of residents possible to choose in that area. For A near sections are B and C, far section is D. For D near section is C and far sections are A and B.